AGENDA

LAKE COUNTY DRAINAGE BOARD and ADVISORY COMMITTEE WEDNESDAY, AUGUST 17, 2016

Advisory Committee Meeting-8:00 A.M. Drainage Board Meeting-9:00 A.M.

Both Meetings Held in the Commissioner's Courtroom, Lake County Government Center
2293 North Main Street, Crown Point, IN 46307 Phone-219-755-3745 Fax 219-755-3750

Lake County Drainage Board
Gerry J. Scheub, Chairman
Michael C. Repay, Member
Kyle W. Allen, Sr., Member
Peter Katic, Drainage Board Attorney

Technical Support
Bill Emerson Jr., Lake County Surveyor
Daniel V. Gossman, Drainage Administrator
Rich Budziak, MS4 Coordinator
Clifford E. Duggan Jr., Legal Consultant
Mary Ellen Kupsik, Drainage Board Secretary

NOTE: **All motions and votes by the Advisory Committee are recommendations to the Lake County Drainage Board and are not final actions. The Lake County Drainage Board is the agency having the authority to act under Indiana Statute.**

1. **Meeting Called to Order – Pledge of Allegiance**

   A. **Emergency Exit Announcement: In case of emergency, exit the Commissioners Courtroom and proceed to the stairs and go to the second floor and exit the building. Do not enter an elevator in an emergency. If you require assistance, an employee will escort and/or assist you. Please silence any cellular telephones during this meeting. If you receive a call/text during this meeting, please excuse yourself with as little disruption as possible.**

2. **Roll Call**

3. **Agenda**
   A. **Additions, Deletions, and/or Corrections**
   B. **Permission to Open Bids/Proposals**

4. **Minutes**
   A. **July 20, 2016**

5. **Reports – Correspondence – Information for the Record**
   A. **Advisory Committee By Township**

B. **Little Calumet River Watershed**

1. **Main Beaver Dam Ditch, Center Twp.**
   Letter from Indiana Department of Natural Resources (IDNR) to County Surveyor Bill Emerson, Jr., regarding SEA #900 request for early coordination meeting.
2. Indiana State Revolving Fund report for City of Crown Point.
3. Indiana Department of Natural Resources (IDNR) letter to Christopher B. Burke Engineering regarding wetland restoration near Burns Ditch.
4. Letter from Drainage Administrator Dan Gossman to City of Crown Point regarding proposed Beacon Hill – Phase II near Main Beaver Dam Ditch.
5. Indiana Department of Natural Resources (IDNR) "Termination Notice" for "Construction in a Floodway" for BP Products regarding Lake George Canal, near Hammond, Indiana.
6. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.
7. Other.

C. **Kankakee River Watershed**

1. US Army Corps of Engineers letter regarding 2017 Nationwide Permit "Public Notice"
2. **West Creek, Hanover Twp.**
   Indiana Department of Natural Resources (IDNR) letter to Christopher B. Burke Engineering regarding permit renewal near West Creek.
3. Letter to Nick Bellar of Winfield regarding regulated drain determination.
4. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.
5. Other

D. **Current Projects - Little Calumet River Watershed**

1. **Hart Ditch, St John Twp.** (State Line to US Highway 30, - Dyer)
   - Review and recommendation for approval of partial payment of $37,951.67 from Al Walus (CBBEL). Contractor: KDM Services, LLC.
2. **Niles Ditch, Center & Winfield Twps.** (113th to Gibson Street)
3. **Cady Marsh Ditch - Highland, North Twp.** (Hart Ditch to Cline Ave, Highland)
4. **Turkey Creek Lateral No. 13 – Bank Stabilization, Schererville, St John Twp.**
5. **Main Beaver Dam Ditch, Center Twp.** (1423 Edgewater Road, Crown Point)
   - Letter from CBBEL to IDEM regarding permit.
   - Letter from CBBEL to ACOE regarding permit.
   - Letter from CBBEL to IDNR regarding permit.
   - Addendum No. 1 for Main Beaver Dam Ditch – Bank Stabilization
6. **Other**

E. **Current Projects - Kankakee River Watershed**

1. **West Creek Maintenance, Hanover Twp.** (125th Ave to 133rd Ave)
2. **Singleton Ditch Maintenance US 41 to Monon Road – Phase II, Cedar Creek Twp.** (Cedar Creek to Monon Road)
   - Letter from Drainage Administrator Dan Gossman to RA Oros regarding silt fence and vegetation.
   - Review and recommendation for approval of final payment of $24,862.09 from Drainage Administrator Dan Gossman Contractor: R.A. Oros, Inc.
3. **Ernie Niemeyer Creek & Levee – Phase IV, West Creek Twp.** (Stateline to US 41)

4. **2016 Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance, Winfield Twp.** (145th Avenue, Leroy)
   - Letter from IDNR to County Surveyor Emerson regarding "No Permit Required"
   - Letter from Drainage Administrator Dan Gossman to IDEM regarding permit.
   - Letter from Drainage Administrator Dan Gossman to ACOE regarding permit.
5. **Other**

6. **Applications / Petitions**
   A. **Bull Run Ditch, St John Twp.**
   Applicant: James & Janice Nichols **Agent: Landmark Engineering Ltd**
   Application to "Perform Work", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of installing culvert crossing for development of Windy Knoll Estates.
   - Review letter from Thomas Burke P.E., PhD., (CBBEL)
   - Review letter from Landmark Engineering

   B. **Bull Run Ditch, St John Twp.**
   Applicant: Preserve, S.J., LLC **Agent: Jack Slager**
   Application to "Perform Work", "Connect/Discharge Into", and "Place Temporary /Permanent Structure" within regulated drain for the purpose of development of subdivision.

   C. **Cady Marsh Ditch, North Twp.**
   Applicant: School Town of Highland **Agent: Torrenga Engineering**
   Application to "Perform Work", Connect/Discharge Into" and "Place Temporary /Permanent Structure" within regulated drain for the purpose of draining athletic fields.

   D. **Other**

7. **MS4 Water Quality**
   A. **Capital Projects Status Report**
      1. **41st Avenue Storm Sewer Project, Calumet Twp.**
         - Agreement with US Army Corps of Engineers
      2. **133rd Avenue / S.R. 55 Storm Drainage Project, Center Twp.**
      3. **Upper Beaver Dam Ditch Storage/Water Quality Project**
      4. **Willowdale Sanitary Sewer – Phase II & III**
      5. **Williams Street, Calumet Twp.**
      6. **South County Sanitary Sewer Project with ACOE**

   B. **MS4 Information and Correspondence**
   C. **Other.**

8. **Financial Issues**
   A. **Little Calumet River Watershed**
   B. **Kankakee River Watershed**

9. **Approve Plans/Advertise for Bids/Seek Proposals and/or Approve Plan Modifications**
   A. **Little Calumet River Watershed**
   B. **Kankakee River Watershed**

10. **Receive and Open Bids/Proposals**
    A. **Little Calumet River Watershed**
        1. **2016 Main Beaver Dam Ditch Bank Stabilization** (1423 Edgewater Rd, Crown Point)
    B. **Kankakee River Watershed**

11. **Award Contracts, Approve Modifications, and/or Ratify Actions by County Surveyor**
    A. **Little Calumet River Watershed**
    B. **Kankakee River Watershed**

12. **Other Business**
    A. **Other**

13. **Adjournment**
    A. **The next meeting is scheduled for Wednesday September 21, 2016 in the Lake County Commissioners' Courtroom at 8:00AM Drainage Advisory Committee and 9:00AM Drainage Board.**
    B. **Motion to Adjourn.**

MINUTES

LAKE COUNTY DRAINAGE BOARD
WEDNESDAY, JULY 20, 2016

Advisory Committee Meeting-8:00 A.M. Drainage Board Meeting-9:00 A.M.

Both Meetings Held in the Commissioner's Courtroom, Lake County Government Center
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Lake County Drainage Board	**Technical Support**
Gerry J. Scheub, Chairman	**Bill Emerson Jr., Lake County Surveyor**
Michael C. Repay, Member	**Daniel V. Gossman, Drainage Administrator**
Kyle Allen, Sr., Member	**Rich Budziak, MS4 Coordinator**
Peter Katic, Drainage Board Attorney	**Clifford E. Duggan Jr., Legal Consultant**
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NOTE: **All motions and votes by the Advisory Committee are recommendations to the Lake County Drainage Board and are not final actions. The Lake County Drainage Board is the agency having the authority to act under Indiana Statute.**

1. **Meeting Called to Order – Pledge of Allegiance**

   A. **Emergency Exit Announcement: In case of emergency, exit the Commissioners Courtroom and proceed to the stairs and go to the second floor and exit the building. Do not enter an elevator in an emergency. If you require assistance, an employee will escort and/or assist you. Please silence any cellular telephones during this meeting. If you receive a call/text during this meeting, please excuse yourself with as little disruption as possible.**

2. **Roll Call**

Members Present: **Chairman Gerry Scheub** and Board Member, **Michael Repay**, Board Member **Kyle W. Allen, Sr.** [3 Present, 0 Absent]. Also Present: **Lake County Surveyor Bill Emerson, Jr.;** Lake County Drainage Administrator, **Dan Gossman;** Drainage Board Attorney, **Peter Katic;** Lake County Drainage Consultant **Clifford E. Duggan, Jr.;** Drainage Board Secretary, **Mary Ellen Kupsik;** North Watershed Engineering Consultant, **Don Oliphant** of Christopher B. Burke Engineering; and South Watershed Engineering Consultant, and **Brian Ralstin,** American Structurepoint.

3. **Agenda**
   A. **Additions, Deletions, and/or Corrections**

Dan Gossman requested the following additions to the Agenda. Item No. 5-C-7, Letter from **Vince Casboni** regarding the Preserve development in the Town of St. John and Item No. 9-A,

Plans and Specifications for Main Beaver Dam Ditch Bank Stabilization Project at 1423 Edgewater Road in Crown Point. Motion to accept the above-stated additions was made by **Kyle W. Allen, Sr.**, seconded by **Gerry Scheub**. Motion to approve carried 2-0.

B. Permission to Open Bids/Proposals

4. Minutes
A. June 15, 2016

Chairman Scheub requested approval of the June 15, 2016 Minutes. Motion made by **Kyle W. Allen, Sr.** to approve the **June 15, 2016** Lake County Drainage Board Minutes, seconded by **Gerry Scheub.** Motion carried 2-0.

5. Reports – Correspondence – Information for the Record
A. Advisory Committee By Township

B. Little Calumet River Watershed

1. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for IDNR regarding Grand Calumet River, near Hammond, Indiana.

Information Only.

2. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for Great Lakes National Program Office regarding Indiana Harbor Canal and Grand Calumet River, near East Chicago, Indiana.

Information Only.

3. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for Great Lakes National Program Office regarding Grand Calumet River, near East Chicago, Indiana.

Information Only.

4. US Army Corps of Engineers letter regarding 2017 Nationwide Permit "Public Notice"

Information Only.

5. Letter from Drainage Administrator Dan Gossman to County Surveyor Bill Emerson Jr., and County Commissioner Gerry Scheub regarding proposed developments in municipalities with respect to regulated drain determination.

Dan Gossman explained that at last month's Drainage Board Meeting, an inquiry was made as to Public Notices being published in the newspaper regarding new subdivision developments draining into our regulated drains. **Dan** presented a report, along with aerial photos, providing in more detail the impact these new developments would present to our regulated drains and his research showed these developments are well outside the county's regulated 75-foot drainage easement and therefore, the county has no legal jurisdiction.

6. **Cady Marsh Ditch, Griffith, Calumet Twp.**
   Letter from County Surveyor Bill Emerson, Jr. to property owners regarding jurisdictional maintenance of regulated drains.

7. **Cady Marsh Ditch, Griffith, Calumet Twp.**
   Letter from County Surveyor Bill Emerson, Jr. to property owners regarding easement restrictions for county regulated drains.

Dan Gossman stated that Item Nos. 5-B-6 & 7 are letters to property owners relating to the recently completed Cady Marsh Ditch Maintenance Project in Griffith explaining that it is their responsibility to maintain and mow their property along the ditch bank easement and that the county will only perform minor maintenance to keep the water flowing within the channel and/or repair any bank erosion, as needed.

8. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for Indiana American Water Company regarding Lake Michigan, near Gary, Indiana.

Information Only.

9. Indiana Department of Natural Resources (IDNR) letter to Little Calumet River Basin Development Commission regarding renewal of multiple permits.

Information Only.

10. Letter from Drainage Administrator Dan Gossman to DLZ regarding INDOT project on US 12 at Railroad Bridge, East Chicago, North Twp.

Information Only.

11. Letter from Drainage Administrator Dan Gossman to Paul Myers of NIPSCo regarding regulated drain determination.

Information Only.

12. Indiana Department of Natural Resources (IDNR) letter to Little Calumet River Basin Development Commission regarding renewal of multiple permits.

Information Only.

13. **Cady Marsh Ditch, Griffith, Calumet Twp.**
    Letter from Drainage Administrator Dan Gossman to property owner regarding authorization to CN Railroad for access within the county regulated drainage easement. (*and Revised Letter)*

Dan Gossman explained that the CN railroad is replacing a bridge over the Cady Marsh Ditch in Griffith and we are allowing them access to perform same. He stated that the railroad, in turn, has agreed to clear any debris that is within the channel under their structure; ensure proper drainage once the structure has been replaced, and restore the access path within the drainage easement to existing or better condition.

14. Memorandum from Thomas B. Burke, P.E., PhD, of Christopher B. Burke Engineering to County Surveyor Bill Emerson, Jr. regarding Lake County Drainage Board Application Review procedures.

Dan Gossman explained that this memorandum relates to an inquiry made at last month's Drainage Advisory Committee Meeting requesting a summary of the review process and procedures followed by our engineering consultants regarding a Lake County Drainage Application.

15. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.

Information Only.

16. **Hart Ditch (Plum Creek), Dyer, St John Twp.**
    - Letter from Enercon requesting determination of Drainage Board application for replacement of power poles.
    - Review letter from Thomas B. Burke, P.E., PhD, indicating that this pole replacement should be sufficient without an application.

Information Only.

17. Other.

C. **Kankakee River Watershed**

1. **Stoney Run Ditch West Branch – Lateral No. 9, Eagle Creek Twp.**
   Letter from Drainage Administrator Dan Gossman to property owners regarding "Invoice" for 2013 culvert replacement cost share.

Information Only.

2. Letter from Drainage Administrator Dan Gossman to County Surveyor Bill Emerson Jr., and County Commissioner Gerry Scheub regarding proposed developments in municipalities with respect to regulated drain determination.

Dan Gossman stated that this letter relates to a subject brought up at last month's Drainage Board Meeting regarding the Greystone Subdivision in the Town of St. John. He presented an aerial showing that even though the stormwater ultimately discharges into Bull Run Ditch, the closest point is still 3,000 feet away from our regulated ditch, so the county has no jurisdiction for reviewing that proposed development.

3. Letter from Drainage Administrator Dan Gossman to Dan Delgado of Lawson-Fisher Assoc. regarding INDOT project on SR 2 between I-65 and US 231, Eagle Creek Twp.

Information Only.

4. **M.J. Brown Ditch, Eagle Creek Twp.**
   Letter from Luella Beth Hillen of Civil & Environmental Consultants to County Commissioner Gerry Scheub regarding INDOT bridge replacement on SR 2 over M.J. Brown Ditch.

Information Only.

5. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.

Information Only.

6. **Cedar Creek, Cedar Creek Twp.**
   - Letter from Enercon requesting determination of Drainage Board application for replacement of power poles.
   - Review letter from Brian Ralstin, P.E. indicating that this pole replacement should be satisfactory without an application.

Information Only.

7. Letter from property owner, Vince Casboni regarding new development, The Preserve in the Town of St. John.

Dan Gossman stated that The Preserve has formally submitted a Drainage Board Application [See Item No. 6-B below], which American Structure Point will be reviewing

8. Other

D. **Current Projects - Little Calumet River Watershed**
   1. **Hart Ditch, St John Twp.** (State Line to US Highway 30, - Dyer)
      - Review and recommendation for approval of partial payment of $66,141.58 from Al Walus (CBBEL). Contractor: KDM Services, LLC.

Dan Gossman requested approval for a partial payment to KDM Services, LLC in the amount of $66,141.58. Motion to approve partial payment to KDM Services, LLC in the amount of $66,141.58 was made by **Kyle W. Allen, Sr.,** seconded by **Gerry Scheub.** Motion carried 2-0.

   2. **Niles Ditch, Center & Winfield Twps.** (113th to Gibson Street)
   3. **Cady Marsh Ditch - Highland, North Twp.** (Hart Ditch to Cline Ave, Highland)
      - Review and recommendation for approval of partial payment of $59,653.98 from Al Walus (CBBEL). Contractor: KDM Services, LLC.

Dan Gossman requested approval for a partial payment to KDM Services, LLC in the amount of $59,653.98. Motion to approve partial payment to KDM Services, LLC in the amount of $59,653.98 was made by **Kyle W. Allen, Sr.,** seconded by **Gerry Scheub.** Motion carried 2-0.

   4. **Turkey Creek Lateral No. 13 – Bank Stabilization, Schererville, St John Twp.**
      "Notice to Proceed" to Austgen Equipment from Drainage Administrator Dan Gossman.

5. **Other**

E. **Current Projects - Kankakee River Watershed**
1. **West Creek Maintenance, Hanover Twp.** (125th Ave to 133rd Ave)
2. **Singleton Ditch Maintenance US 41 to Monon Road – Phase II, Cedar Creek Twp.** (Cedar Creek to Monon Road)
3. **Ernie Niemeyer Creek & Levee – Phase IV, West Creek Twp.** (Stateline to US 41)

Dan Gossman reported that he spoke with property owner, **Dan Nelson**, who stated that he will now be working towards getting the trees removed himself and will be coordinate with our contractor to determine where he will end and our contractor will start.

4. **2016 Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance, Winfield Twp.** (145th Avenue, Leroy)
   - "Notice of Award" to Delta III Inc. from Drainage Administrator Dan Gossman
   - Receive and Accept "Performance Bond" from Delta III Inc.
   - "Notice to Proceed" to Delta III Inc. from Drainage Administrator Dan Gossman
5. **Other**

Dan Gossman requested that Item Nos. 5-B, C, D & E be made a "Matter of Public Record". Motion to make Item Nos. 5-B, C, D & E a "Matter of Public Record" was made by **Kyle W. Allen, Sr.**, and seconded by **Gerry Scheub**. Motion carried 2-0.

6. <u>**Applications / Petitions**</u>

A. **Bull Run Ditch, St John Twp.**
Applicant: James & Janice Nichols **Agent: Landmark Engineering Ltd**
Application to "Perform Work", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of installing culvert crossing for development of Windy Knoll Estates.
- Review letter from Thomas Burke P.E., PhD., (CBBEL)

TABLED.
Dan Gossman explained that this application was deferred at last month's meeting, since the application was inadvertently sent to CBBEL for review instead of American Structure Point. He requested that no action be taken while application is being reviewed by American Structurepoint.

B. **Bull Run Ditch, St John Twp.**
Applicant: Preserve, S.J., LLC **Agent: Jack Slager**
Application to "Perform Work", "Connect/Discharge Into", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of development of subdivision.

DEFERRED.
Dan Gossman reported that this application was formally received last week and has been forwarded to American Structurepoint for their review and requested deferral. Motion to defer was made by **Kyle W. Allen, Sr.**, seconded by **Gerry Scheub**. Motion carried 2-0.

C. **Other**

7. **MS4 Water Quality**
   A. **Capital Projects Status Report**
      1. **41st Avenue Storm Sewer Project, Calumet Twp.**

Lake County Surveyor Bill Emerson, Jr. reported that this project involves running a storm sewer down where Chase would go if it kept on going south through low-lying Calumet Township neighborhoods around 41st Avenue just north of the Cady Marsh Ditch. He explained that **Commissioner Repay** has worked hard on getting 219 Federal Funding and we will also be supplementing this project with some MS4 Funds. He stated that CBBEL has completed the design work, which the Army Corps is currently reviewing and, in addition, CBBEL is currently securing easements and property acquisitions in the area.

      2. **133rd Avenue / S.R. 55 Storm Drainage Project, Center Twp.**

Lake County Surveyor Bill Emerson, Jr. reported that this is an area that has been flooding for a long time causing the intersection to become very dangerous during a heavy rainfall event He discussed requesting the City of Crown Point to Petition the Lake County Drainage Board declaring that an obstruction needs to be removed within the mutual drain and open it up.

      3. **Upper Beaver Dam Ditch Storage/Water Quality Project**
      4. **Willowdale Sanitary Sewer – Phase II & III**
         - Review and recommendation for approval of partial payment of $16,785.00 from Frank Stewart, P.E. (DLZ). Contractor: Gough, Inc.
         - Review and recommendation for approval of partial payment of $3,525.00 from Frank Stewart, P.E. (DLZ). Contractor: Gough, Inc.

Lake County Surveyor Bill Emerson, Jr. stated that this has been a very successful project, which is nearing completion with only a few outstanding landscaping issues to be addressed and will be meeting with the contractor, along with some residents, to discuss same. **Surveyor Emerson, Jr**. requested two partial invoice payments to Gough for work they satisfactorily performed and completed, and unrelated to the outstanding restoration issues, in the amount of $16,785.00 and another partial payment in the amount of $3,525.00. He added that after these two partial payments, close to $80,000.00 in retainage will remain on this project. Motion to approve the above two partial payments to Gough Inc. on the Willowdale Sanitary Sewer Project was made by **Kyle W. Allen, Sr**., seconded by **Gerry Scheub**. Motion carried 2-0.

   B. **MS4 Information and Correspondence**
   C. **Other.**

8. **Financial Issues**
   A. **Little Calumet River Watershed**
   B. **Kankakee River Watershed**

9. **Approve Plans/Advertise for Bids/Seek Proposals and/or Approve Plan Modifications**
   A. **Little Calumet River Watershed**

      1. **Main Beaver Dam Ditch Bank Stabilization Project at 1423 Edgewater Road**

Dan Gossman requested approval of the Plans and Specification for the above-referenced project and advertise for bids with bids due at next month's meeting on August 17, 2016.

Motion to approve was made by **Kyle W. Allen, Sr.** and seconded by **Gerry Scheub**. Motion carried 2-0.

B. Kankakee River Watershed

10. Receive and Open Bids/Proposals
A. Little Calumet River Watershed
B. Kankakee River Watershed

11. Award Contracts, Approve Modifications, and/or Ratify Actions by County Surveyor
A. Little Calumet River Watershed
B. Kankakee River Watershed
1. **2016 Singleton Ditch Maintenance, Cedar Creek Twp.** (Monon Rd-Mississippi St)
   - Review of bids from Brian Ralston P.E. (ASI)
2. **2016 Cedar Creek Maintenance, Cedar Creek Twp.** (Lake Dalecarlia to 171st Ave)
   - Review of bids from Brian Ralston P.E. (ASI)
3. **2016 McConnell Ditch Maintenance, Cedar Creek Twp.** (Morse St to 171st Ave)
   - Review of bids from Brian Ralston P.E. (ASI)

Dan Gossman reported that after a thorough review with **Surveyor Bill Emerson, Jr.,** he requested approval to award the above-three projects as follows:

Singleton Ditch	Delta III, Inc.	$209,099.00
Cedar Creek	Delta III, Inc.	$123,075.00
McConnell Ditch	Austgen Equipment (2-year project, payable in 2016 & 2017)	$430,311.85

Dan Gossman added that all three projects involve water quality items in their bids and a percentage of MS4 funding will be used towards supplementing these projects. **Mr. Gossman** requested recommending awarding these three projects as listed above. Motion to recommend approval of same was made by **Kyle W. Allen, Sr.,** seconded by **Gerry Scheub**. Motion carried 2-0.

12. Other Business
A. Other

Jeff Huett (Town of Schererville, Public Works) reported bank erosion issues along Turkey Creek on the south side of Joliet (330) wherein two property owners are losing their backyards. In addition, he reported that there are a couple of utilities that cross over that ditch that need to be inspected. **Surveyor Emerson, Jr.** responded that he has been out there and took some site measurements, which he needs to review in preparing plans and specifications to present at next month's Drainage Board Meeting. **Commissioner Scheub** requested the Lake County Surveyor's staff look at another site just south of the Scherwood Golf Course behind Golfview Street where he reported stagnant water issues by Scherwood Golf Course Club House. **Commissioner Scheub** added that a copy of a survey for in that area can be obtained by **Bob Volkmann** from the Town of Schererville.

Arnold Reyes (1423 Edgewater Road, Crown Point) thanked the Lake County Drainage Board for their cooperation and work performed thus far to address his erosion problems in his backyard occurring from Main Beaver Dam Ditch.

13. Adjournment

A. The next meeting is scheduled for Wednesday August 17, 2016 in the Lake County Commissioners' Courtroom at 8:00AM Drainage Advisory Committee and 9:00AM Drainage Board.

Motion to adjourn was made by **Kyle W. Allen, Sr.**, seconded by Gerry Scheub. Motion carried 2-0. Meeting adjourned at 9:25 a.m.

APPROVED THIS **17th** DAY OF **AUGUST, 2016**

LAKE COUNTY DRAINAGE BOARD

Gerry Scheub, Chairman

Michael C. Repay, Member

Kyle W. Allen, Sr., Member

ATTEST: Mary Ellen Kupsik, Drainage Board Secretary

MINUTES

LAKE COUNTY DRAINAGE BOARD
ADVISORY COMMITTEE
WEDNESDAY, JULY 20, 2016

Advisory Committee Meeting-8:00 A.M. Drainage Board Meeting-9:00 A.M.

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1. **Meeting Called to Order – Pledge of Allegiance**

   A. **Emergency Exit Announcement: In case of emergency, exit the Commissioners Courtroom and proceed to the stairs and go to the second floor and exit the building. Do not enter an elevator in an emergency. If you require assistance, an employee will escort and/or assist you. Please silence any cellular telephones during this meeting. If you receive a call/text during this meeting, please excuse yourself with as little disruption as possible.**

2. **Roll Call**

Tom Silich, Hobart Twp.; **Dave Hubinger**, Center Twp.; **Milan Dakich**, Ross Twp.; **Larry Cope,** Winfield Twp.; **Louise Neese**, Calumet Twp.; **Harold Mussman**, West Creek Twp.; **Alice Dahl**, Cedar Creek Twp. and **John Jurs**, Eagle Creek Twp. [8 Present, 3 Absent]. Also Present: Lake County Surveyor **Bill Emerson, Jr.**; **Dan Gossman**, Drainage Administrator; Legal Consultant, **Clifford E. Duggan, Jr.**; Drainage Board Attorney, **Peter Katic**; **Mary Ellen Kupsik,** Drainage Board Secretary; North Watershed Engineering Consultant, **Don Oliphant** of Christopher B. Burke Engineering; South Watershed Engineering Consultant, **Brian Ralstin,** American Structurepoint, Inc.

3. **Agenda**
   A. Additions, Deletions, and/or Corrections

Dan Gossman requested the following additions to the Agenda. Item No. 5-C-7, Letter from **Vince Casboni** regarding the "proposed" Preserve development in the Town of St. John and Item No. 9-A, Plans and Specifications for Main Beaver Dam Ditch Bank Stabilization Project at 1423 Edgewater Road in Crown Point. Motion to accept the above-stated additions was made by **Milan Dakich**, seconded by **Dave Hubinger**. Motion to approve carried.

   B. Permission to Open Bids/Proposals

4. **Minutes**
   A. June 15, 2016

Tom Silich requested a motion to accept and approve the **June 15, 2016** Lake County Drainage Advisory Board Minutes. Motion to accept and approve same was made by **Milan Dakich** seconded by **Louise Neese**. Motion carried.

5. **Reports – Correspondence – Information for the Record**
   A. Advisory Committee By Township

Milan Dakich (Ross Twp.) asked if the project on 61st Avenue is complete. **Dan Gossman** responded that it is complete and that grass has been coming up slowly due to the lack of rain.

Harold Mussman (West Creek Twp.) reported that he has been in contact with property owner, **Bill Peterson**, who was inquiring about whether or not the Singleton Ditch was complete, since the silt fence still remains in place. **Surveyor Bill Emerson, Jr.** replied that he will inspect the site with the contractor. **Mr. Mussman** then inquired as to the scattered logs along the Ernie Niemeyer. **Dan Gossman** replied that he spoke with property owner, **Dan Nelson**, who now has family approval to remove same and will be coordinating his efforts with the contractor.

John Jurs (Eagle Creek Twp.) reported a spot on the north side of the Singleton between Mississippi and 55 near the old sand and gravel site where there is a pond which comes up against it causing the bank to become very narrow and erode. **Dan Gossman** stated that is part of a project, which is going to be recommended to award at today's Drainage Board Meeting. **John Jurs** then asked if the Surveyor's Office has received an "as-built" from the quarry. **Surveyor Emerson, Jr.** replied that one has been received, but we are still looking into some issues regarding the overflow into the pit during heavy rainfall events and vegetation being established along the ponds.

   B. Little Calumet River Watershed
      1. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for IDNR regarding Grand Calumet River, near Hammond, Indiana.

Information Only.

2. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for Great Lakes National Program Office regarding Indiana Harbor Canal and Grand Calumet River, near East Chicago, Indiana.

Information Only.

3. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for "Construction in a Floodway" for Great Lakes National Program Office regarding Grand Calumet River, near East Chicago, Indiana.

Information Only.

4. US Army Corps of Engineers letter regarding 2017 Nationwide Permit "Public Notice"

Information Only.

5. Letter from Drainage Administrator Dan Gossman to County Surveyor Bill Emerson Jr., and County Commissioner Gerry Scheub regarding proposed developments in municipalities with respect to regulated drain determination.

Dan Gossman explained that at last month's Drainage Board Meeting, an inquiry was made as to Public Notices being published in the newspaper regarding new subdivision developments draining into our regulated drains. **Dan** presented a report, along with aerial photos, providing in more detail the areas involved and exactly the impact these new developments would present to our regulated drains. His research showed these developments are well outside the county's regulated 75-foot drainage easement and therefore, the county has no legal jurisdiction.

6. **Cady Marsh Ditch, Griffith, Calumet Twp.**
   Letter from County Surveyor Bill Emerson, Jr. to property owners regarding jurisdictional maintenance of regulated drains.

7. **Cady Marsh Ditch, Griffith, Calumet Twp.**
   Letter from County Surveyor Bill Emerson, Jr. to property owners regarding easement restrictions for county regulated drains.

Dan Gossman reported that the letters under Item Nos. 5-B-6 & 7, are directed at the property owners, along the Cady Marsh Ditch in the Town of Griffith, informing them that this ditch maintenance project is now complete and it is the property owners responsibility to maintain the ditch banks themselves and reiterating that the county is responsible for maintaining the flow of water within the channel.

8. Indiana Department of Natural Resources (IDNR) "Certificate of Approval" for Indiana American Water Company regarding Lake Michigan, near Gary, Indiana.

Information Only.

9. Indiana Department of Natural Resources (IDNR) letter to Little Calumet River Basin Development Commission regarding renewal of multiple permits.

Information Only.

10. Letter from Drainage Administrator Dan Gossman to DLZ regarding INDOT project on US 12 at Railroad Bridge, East Chicago, North Twp.

Information Only.

11. Letter from Drainage Administrator Dan Gossman to Paul Myers of NIPSCo regarding regulated drain determination.

Information Only.

12. Indiana Department of Natural Resources (IDNR) letter to Little Calumet River Basin Development Commission regarding renewal of multiple permits.

Information Only.

13. **Cady Marsh Ditch, Griffith, Calumet Twp.**
    Letter from Drainage Administrator Dan Gossman to property owner regarding authorization to CN Railroad for access within the county regulated drainage easement. (*and Revised Letter)*

Dan Gossman reported that the railroad is going to be performing a bridge replacement and has agreed to clear any debris that is within the channel under their structure; ensure proper drainage once the structure has been replaced, and restore the access path within the drainage easement to existing or better condition.

14. Memorandum from Thomas B. Burke, P.E., PhD, of Christopher B. Burke Engineering to County Surveyor Bill Emerson, Jr. regarding Lake County Drainage Board Application Review procedures.

Dan Gossman explained that this memorandum relates to an inquiry made at last month's Drainage Advisory Committee Meeting requesting a summary of the procedures followed by our engineering consultants as it relates to Drainage Application review process.

15. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.

Information Only.

16. **Hart Ditch (Plum Creek), Dyer, St John Twp.**
    - Letter from Enercon requesting determination of Drainage Board application for replacement of power poles.
    - Review letter from Thomas B. Burke, P.E., PhD, indicating that this pole replacement should be sufficient without an application.

Information Only.

17. Other.

Tom Silich requested a Motion that Item Nos. 5-B-1 thru 17 be made a "Matter of Record". Motion carried.

C. **Kankakee River Watershed**

1. **Stoney Run Ditch West Branch – Lateral No. 9, Eagle Creek Twp.**
   Letter from Drainage Administrator Dan Gossman to property owners regarding "Invoice" for 2013 culvert replacement cost share.

Information Only.

2. Letter from Drainage Administrator Dan Gossman to County Surveyor Bill Emerson Jr., and County Commissioner Gerry Scheub regarding proposed developments in municipalities with respect to regulated drain determination.

Dan Gossman reported that after reviewing the Greystone Subdivision located in the Town of St. John, it was determined that this "proposed" subdivision is over 3,000 feet away from the county's 75-foot drainage easement and therefore, any drainage requirements are solely under the jurisdiction of the Town of St. John.

3. Letter from Drainage Administrator Dan Gossman to Dan Delgado of Lawson-Fisher Assoc. regarding INDOT project on SR 2 between I-65 and US 231, Eagle Creek Twp.

Information Only.

4. **M.J. Brown Ditch, Eagle Creek Twp.**
   Letter from Luella Beth Hillen of Civil & Environmental Consultants to County Commissioner Gerry Scheub regarding INDOT bridge replacement on SR 2 over M.J. Brown Ditch.

Information Only.

5. Letter/Report from Asst Drainage Administrator Tom Regalado to County Surveyor Bill Emerson, Jr. regarding Clearing & Snagging Crew activity.

Information Only.

6. **Cedar Creek, Cedar Creek Twp.**
   - Letter from Enercon requesting determination of Drainage Board application for replacement of powerpoles.
   - Review letter from Brian Ralstin, P.E. indicating that this pole replacement should be satisfactory without an application.

Dan Gossman reported that no Drainage Board Application is required.

7. Letter from Mr. Vince Casboni regarding the Preserve development in the Town of St. John.

Dan Gossman reported that a formal Drainage Board Application has now been received by the Preserve Development.

8. Other

Tom Silich requested a Motion that Item Nos. 5-B-1 thru 17 be made a "Matter of Record". Motion made by John Jurs, seconded by Alice Dahl. Motion carried.

D. **Current Projects - Little Calumet River Watershed**
   1. **Hart Ditch, St John Twp.** (State Line to US Highway 30, - Dyer)
      - Review and recommendation for approval of partial payment of $66,141.58 from Al Walus (CBBEL). Contractor: KDM Services, LLC.

Dan Gossman requested recommending approval for a partial payment to KDM Services, LLC in the amount of $66,141.58. Motion to recommend approval of same was made by **Alice Dahl,** seconded by **Louise Neese.** Motion carried.

   2. **Niles Ditch, Center & Winfield Twps.** (113th to Gibson Street)
   3. **Cady Marsh Ditch - Highland, North Twp.** (Hart Ditch to Cline Ave, Highland)
      - Review and recommendation for approval of partial payment of $59,653.98 from Al Walus (CBBEL). Contractor: KDM Services, LLC.

Dan Gossman requested recommending approval for a partial payment to KDM Services, LLC in the amount of $59,653.98. Motion to recommend approval of same was made by **Alice Dahl,** seconded by **Louise Neese.** Motion carried.

   4. **Turkey Creek Lateral No. 13 – Bank Stabilization, Schererville, St John Twp.** "Notice to Proceed" to Austgen Equipment from Drainage Administrator Dan Gossman.

Information Only.

   5. **Other**

Tom Silich requested a Motion that Item Nos. 5-B-1 thru 17 be made a "Matter of Record". Motion made by **Alice Dahl**, seconded by **Louise Neese**. Motion carried.

E. **Current Projects - Kankakee River Watershed**
   1. **West Creek Maintenance, Hanover Twp.** (125th Ave to 133rd Ave)
   2. **Singleton Ditch Maintenance US 41 to Monon Road – Phase II, Cedar Creek Twp.** (Cedar Creek to Monon Road)
   3. **Ernie Niemeyer Creek & Levee – Phase IV, West Creek Twp.** (Stateline to US 41)
   4. **2016 Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance, Winfield Twp.** (145th Avenue, Leroy)
      - "Notice of Award" to Delta III Inc. from Drainage Administrator Dan Gossman
      - Receive and Accept "Performance Bond" from Delta III Inc.
      - "Notice to Proceed" to Delta III Inc. from Drainage Administrator Dan Gossman

Information Only.

   5. **Other**

Dan Gossman requested that Item No. 5-E-1 thru 5 be made a "Matter of Public Record". Motion to make Item No. 5-E-1 thru 5 a "Matter of Public Record" was made by **John Jurs**, seconded by **Alice Dahl**. Motion carried.

6. **Applications / Petitions**
   A. **Bull Run Ditch, St John Twp.**
      Applicant: James & Janice Nichols **Agent: Landmark Engineering Ltd**
      Application to "Perform Work", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of installing culvert crossing for development of Windy Knoll Estates.
      - Review letter from Thomas Burke P.E., PhD., (CBBEL)

Dan Gossman explained that this application was deferred at last month's meeting, since the application was inadvertently sent to CBBEL for review, as opposed to American Structure Point and requested that no action be taken.

   B. **Bull Run Ditch, St John Twp.**
      Applicant: Preserve, S.J., LLC **Agent: Jack Slager**
      Application to "Perform Work", "Connect/Discharge Into", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of development of subdivision.

Dan Gossman reported that this application was received last week and has been forwarded to American Structurepoint for their review and requested recommending deferral. Motion to defer was made by **Alice Dahl**, seconded by **Milan Dakich**. Motion carried.

   C. **Other**

7. **MS4 Water Quality**
   A. **Capital Projects Status Report**
      1. **41st Avenue Storm Sewer Project, Calumet Twp.**

Lake County Surveyor Bill Emerson, Jr. reported that this is a new project, which **Commissioner Repay** has worked hard on getting 219 Federal Funding. He explained that **Thomas Burke** with CBBEL worked on the full design for this project, along with the Army Corps. The project entails running a storm sewer through neighborhoods that are low lying and are continually having a great deal of flooding problems in the Calumet Township area. He stated that CBBEL has completed the design work and Army Corps is currently reviewing same, adding that this project will be going out to bid soon.

      2. **133rd Avenue / S.R. 55 Storm Drainage Project, Center Twp.**

Lake County Surveyor Bill Emerson, Jr. reported in conversing with Commissioner Scheub that in order to move forward on this project we may ask the City of Crown Point to Petition the Lake County Drainage Board wherein we would perform the work to get the ditch cleaned out and flowing which will prevent any further flooding of this intersection.

      3. **Upper Beaver Dam Ditch Storage/Water Quality Project**

4. **Willowdale Sanitary Sewer – Phase II & III**
   - Review and recommendation for approval of partial payment of $16,785.00 from Frank Stewart, P.E. (DLZ). Contractor: Gough, Inc.
   - Review and recommendation for approval of partial payment of $3,525.00 from Frank Stewart, P.E. (DLZ). Contractor: Gough, Inc.

Lake County Surveyor Bill Emerson, Jr. reported that this project is nearing completion and requested recommending approval for two partial payments to Gough, Inc.; one in the amount of $16,785.00 and the second in the amount of $3,525.00. Motion to request recommending the above two stated partial payments to Gough, Inc. was made by **Dave Hubinger**, seconded by **Louise Neese**. Motion carried.

B. MS4 Information and Correspondence
C. Other.

8. <u>Financial Issues</u>
A. Little Calumet River Watershed
B. Kankakee River Watershed

9. <u>Approve Plans/Advertise for Bids/Seek Proposals and/or Approve Plan Modifications</u>
A. Little Calumet River Watershed
1. Main Beaver Dam Ditch Bank Stabilization Project at 1423 Edgewater Road

Dan Gossman requested recommending approval of the Plans and Specification for the above-referenced project and advertise for bids with bids due at next month's Drainage Board Meeting on August 17, 2016. Motion to recommend approval was made by **Louise Neese** and seconded by **Dave Hubinger**. Motion carried.

B. Kankakee River Watershed

10. <u>Receive and Open Bids/Proposals</u>
A. Little Calumet River Watershed
B. Kankakee River Watershed

11. <u>Award Contracts, Approve Modifications, and/or Ratify Actions by County Surveyor</u>
A. Little Calumet River Watershed
B. Kankakee River Watershed
1. **2016 Singleton Ditch Maintenance, Cedar Creek Twp.** (Monon Rd-Mississippi St)
   - Review of bids from Brian Ralston P.E. (ASI)
2. **2016 Cedar Creek Maintenance, Cedar Creek Twp.** (Lake Dalecarlia to 171st Ave)
   - Review of bids from Brian Ralston P.E. (ASI)
3. **2016 McConnell Ditch Maintenance, Cedar Creek Twp.** (Morse St to 171st Ave)
   - Review of bids from Brian Ralston P.E. (ASI)

Dan Gossman reported that after a thorough review with **Surveyor Bill Emerson, Jr.,** he is requesting recommending approval to award the above-three projects as follows:

Singleton Ditch	Delta III, Inc.	$209,099.00
Cedar Creek	Delta III, Inc.	$123,075.00
McConnell Ditch	Austgen Equipment	$430,311.85 (2-year project)

Dan Gossman added that all three projects involve water quality items in their bids and a percentage of MS4 funding will be used towards these projects. **Mr. Gossman** requested recommending awarding these three projects as listed above. Motion to recommend approval of same was made by **Alice Dahl**, seconded by **John Jurs**. Motion carried. Both **Surveyor Bill Emerson, Jr. and Dan Gossman** invited **John Jurs** to attend the Pre-Construction Meeting with Contractor, Delta III, Inc. when scheduled. **John Jurs** asked if anything come about on the repairs on the Brown Levee. **Dan** responded that in the next couple of weeks, he will schedule a meeting to come down there.

Milan Dakich inquired if Merrillville Stormwater ever pay there bill yet and, if not, suggested sending a follow up letter

12. <u>Other Business</u>

A. Other

13. <u>Adjournment</u>

A. The next meeting is scheduled for Wednesday August 17, 2016 in the Lake County Commissioners' Courtroom at 8:00AM Drainage Advisory Committee and 9:00AM Drainage Board.

B. Motion to Adjourn.

Meeting adjourned at 8:32 a.m.

5-B-1
8-17-16

Michael R. Pence., Governor
Cameron F. Clark, Director
Division of Water
402 W. Washington Street
Room W264
Indianapolis, IN 46204
Phone (317) 232-4160
Toll-free (877) 928-3755
Fax (317) 233-4579
www.in.gov/dnr/water/

DNR Indiana Department of Natural Resources

July 22, 2016

MAILED
JUL 22 2016

Bill Emerson Jr.
Lake County Surveyor
2293 North Main Street
Crown Point, IN 46307

Re: SEA #900, Main Beaver Dam Ditch, Lake County

Dear Mr. Emerson:

This letter is written as a follow up to your June 24, 2016 request for a desk review of the proposed reconstruction work on Main Beaver Dam Ditch. Due to the nature of the project a field meeting was not held and an in office review was conducted. Consulted individuals included Marty Maupin, Office of Water Quality, Indiana Department of Environmental Management; Nicole Solitro, Engineering Services Section, Division of Water; Erin Basiger, Division of Fish and Wildlife; Sarah Wright and Jamie Cook, Christopher B. Burke Engineers; and Dan Gossman, Lake County Surveyor's Office. A copy of the SEA 368 Inspection Report is enclosed.

IC 36-9-27-53.5 requires that prior to initiating work on a drainage project, which is subject to regulation under certain State and/or Federal environmental regulations, an on-site field review must occur. Within 30 days of the field review, the Department of Natural Resources is required to provide the county drainage board with a list of conditions that the Department of Environmental Management and the Department of Natural Resources would place on any permit for the proposed work. The Department of Natural Resources' conditions are valid for up to 2 years after the on-site field review provided a permit application is submitted within that time frame.

This letter is not approval for construction under any State or Federal Law.

Description: The project proposes log jam removal (clearing and snagging), channel bank fill (slope repair), channel bank stabilization (fabric wraps), vegetative stabilization, and riprap bank protection from Stations 0+00 to 1+29 on the south bank of the channel. Material removed shall be disposed of by a method approved by the Lake County Surveyor's Office. All work will be performed within the existing 75' easement.

Location: Beginning approximately 1,650' upstream from Canter Ross Road (West 101st Avenue) working upstream and ending at a point 129' upstream located in Section 33, Township 35 North, Range 8 West, Ross Townhip, Lake County.

UTM Coordinates: Downstream North = 4587285, East = 471268
Upstream North = 4587269, East = 471240
(Crown Point Quadrangle Map)

Because the total stream length of Main Beaver Dam Ditch is more than 10 miles, a Construction in a Floodway permit is required from the Indiana Department of Natural Resources (IDNR) under *IC 14-28-1, Flood Control Act.*

The following are the Department of Natural Resources' comments as they would appear as conditions on a Construction in the Floodway Permit or in response to the Corps of Engineers as a result of a Section 404 review.

RECEIVED
JUL 25 2016
LAKE COUNTY SURVEYOR

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DEPARTMENT OF NATURAL RESOURCES COMMENTS

An in-office review was completed for this project. Your concurrence regarding these comments was received, at the Division of Water, on July 14, 2016.

1. Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only.

2. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife's Environmental Unit.

3. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3" in diameter, living or dead, with loose hanging bark or with cracks, crevices, or cavities) from April 1 through September 30.

4. Do not excavate or place spoil in any riparian wetland.

5. Limit any channel widening and bank disturbance to the least vegetated side of the waterway.

6. Revegetate all areas disturbed during debris and sediment removal. Permanent seed and fertilize disturbed ditch banks at the end of each day. Revegetate areas with one of the seeding mixtures or species listed in the VEGETATIVE STABILIZATION AND SEEDING PRACTICE of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996) or other species that are approved by the Department as being suitable to site and climate conditions. At the completion of the project, re-seed and fertilize areas that do not have sufficient vegetative cover to control erosion.

7. Revegetate all spoil materials deposited in areas not used for crop production.

8. A representative of the Surveyor's Office or their contractor shall inspect erosion and sediment control practices daily and repair as necessary until all construction is complete and disturbed areas are permanently stabilized.

9. Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse.

10. All work must conform with the existing bank at the upstream and downstream limits of the project site.

11. Except for trees cabled in-place for bank protection, do not leave felled trees, brush, or other debris in the floodway.

12. Keep all spoils out of the floodway as defined as that shown on Panels 18089CO261E and 18089CO262E of the Lake County and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COMMENTS

The following comments are directed toward the above-referenced project and are specific to the sections of the proposed project reviewed by IDEM.

RECEIVED
JUL 25 2016
LAKE COUNTY SURVEYOR

1. Submit an application to IDEM for Section 401 Water Quality Certification if the Corps requires an individual Section 404 permit, a Regional General Permit for impacts greater than 0.1 acre, or a Nationwide Permit for which IDEM has denied Water Quality Certification. Application forms are available through the IDEM office.

2. Avoid and minimize impacts (filling or mechanical clearing) of jurisdictional wetlands to the greatest extent possible, and provide acceptable compensatory mitigation for all unavoidable impacts to jurisdictional wetlands greater than 0.1 acre.

3. Field mark the area where the filling or mechanical clearing of wetlands is unavoidable.

4. Use solid tile and anti-seep collars on the portion of the tile line that transects the wetland.

5. Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse.

6. Limit the physical disturbance of banks, other soils, and existing vegetation to that which is necessary to achieve the purpose of the project.

7. Deposit dredged material on upland, or old spoils that are considered upland.

8. Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only.

9. Perform daily seeding of the ditch banks if the project is conducted during the agricultural growing season; seed the ditch banks as soon as possible if the project activity occurs during the dormant season.

10. Conduct logjam removal and tree preservation consistent with the practices established in the *Indiana Drainage Handbook*. The handbook was prepared in accordance with State of Indiana Public Law 329-1995 to serve as an administrative and technical guide for drainage activities within Indiana streams and ditches.

11. Encourage landowners affected by this project to place grassed filter strips on land immediately bordering the stream. The federal *Conservation Reserve Program* offers competitive annual payments for this practice on a continual sign-up basis. In addition, certain areas may qualify for special cost share or incentive programs for the establishment of filter strips. Contact the local county Soil and Water Conservation District or the Natural Resources Conservation Service for program and practice specific information.

12. Spread dredged material, where possible, in a manner that will not impede overland flow to the stream. This will help eliminate adjacent berm buildup and associated "points of concentrated flow" that are erosive and require expensive land treatment practices.

13. Work from only one side of the stream, and where possible, from the side of the stream which does not have adjacent wetlands. If no wetlands are present, work from the side with the fewest trees and woody vegetation. If both banks are equally vegetated, work only from the north or east side, whichever is appropriate.

14. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife's Environmental Unit.

15. Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3" in diameter, living or dead, with loose hanging bark or with cracks, crevices, or cavities) from April 1 through September 30.

16. Ensure that the contractor performing the work complies with Section 311 of the Federal Clean Water Act and with 327 IAC 2-6.1 concerning spills of oil and/or hazardous materials.

If you have any questions about the Department of Environmental Management's comments, please contact Marty Maupin at 317-409-7579. You can also contact the Office of Water Management through IDEM's Environmental Helpline at 1-800-451-6027.

In accordance with IC 36-9-27-53.5(g) a county surveyor or board that is aggrieved by the permit conditions disclosed under subsection (d)(3) has the right to enter into further negotiations with the Department of Natural Resources and the Department of Environmental Management in order to obtain a mutually agreeable set of permit conditions. To initiate the negotiations, please write a letter to Michael Neyer, PE, Director, Division of Water addressing the aggrieved portions of the comments and conditions included in this letter.

Thank you for your cooperation in this matter. If you should have any questions or would like to discuss modifications to the above comments, please contact me at our toll free number, 1-877-WATER55 (1-877-928-3755) or at (317) 232-4166.

Sincerely,

George C. Bowman

George C. Bowman, PE
Assistant Director
Division of Water

GCB/ELB

pc: Marty Maupin, Office of Water Management, IDEM
Paul Leffler, U.S. Army Corps of Engineers, Chicago District
Jamie Cook, Christopher B. Burke Engineers

Enclosures: SEA 368 Inspection Report
Permit application and Instructions

SEA 368 INSPECTION REPORT

State Form 51594 (2-04)

Indiana Department of Natural Resources,
Division of Water
402 West Washington Street, Room W264
Indianapolis, IN 46204
ph. (317) 232-4160 or toll free 1-877-928-3755
Fax (317) 233-4579

SEA # 900 DATE DESK REVIEW

PROJECT INFORMATION

STREAM/LAKE Main Beaver Dam Ditch

LOCATION Beginning approx 1,650' upstream from Center Ross Road (West 101st Ave) working upstream and ending at a point 129' upstream. ~~[illegible]~~

DOWNSTREAM

Section 33 NW / NE / SW / SE; Township 35 (N) / S; Range 8 E / (W)

Quadrangle Crown Point UTM 4587285 N 471268 E

City/Town Crown Point Civil Township Ross County Lake

UPSTREAM

Section 33 NW / NE / SW / SE; Township 35 (N) / S; Range 8 E / (W)

Quadrangle Crown Point UTM 4587269 N 471240 E

City/Town Crown Point Civil Township Ross County Lake

DESCRIPTION:

One sided construction: ☐ Yes ☐ No Vegetated buffer strip: ☐ Yes ☐ No, If "yes", strip width ____ feet

Project proposes removal of brush, trees, stumps, and other debris that has fallen into the ditch and on the slopes to be dressed with riprap and fabric wraps on the south side of the bank. Removed material will be disposed of by approved method by the Lake County Surveyor's Office. All work will be within 75' easement. Additionally regrading and back filling eroded slopes is proposed w/ riprap being installed from Station 0+00 to Station 1+29 (129').

ATTENDEES

		phone		fax
Water	Nicole Solitro	(317) 234-1043	( )	
Fish & Wildlife	Erin Basiger	(317) 234-0586	( )	
Soil Conservation		( )	( )	
IDEM	Mandy Mauer (Dec Review)	(317) 233-2471	( )	
County		( )	( )	
SWCD		( )	( )	
USF&WS		( )	( )	
USACE		( )	( )	
Other		( )	( )	

FINDINGS

IDNR-SEA 368 FIELD REVIEW CONDITIONS

The following checked-off items are the Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.

Reference	Condition
☑ ER11	Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only
☑ ER16	Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Water's Environmental Unit
☐ ER17	For salmonid streams, do not work in the waterway from March 15 through June 15 and from July 15 through November 30 without the prior written approval of the Division of Water's Environmental Unit
☑ ER19	Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3 inches in diameter, living or dead, with loose hanging bark or with cracks, crevices, or cavities) from April 1 through September 30
☑ ER20	Do not excavate or place spoil in any riparian wetland
☑ ER31	Limit any channel widening and bank disturbance to the ~~(north/south/east/west)~~ least vegetated side of the waterway
☐ ER65	Stabilize banks as work progresses so that no more than 200 lineal feet are left disturbed at the completion of the workday
☑ ER66	Revegetate all areas disturbed during debris and sediment removal. Permanent seed and fertilize disturbed ditch banks at the end of each day. Revegetate areas with one of the seeding mixtures or species listed in the VEGETATIVE STABILIZATION AND SEEDING PRACTICE of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996) or other species that are approved by the Department as being suitable to site and climate conditions. At the completion of the project, re-seed and fertilize areas that do not have sufficient vegetative cover to control erosion
☐ ER67	Protect newly seeded areas with anchored mulch at specified locations as listed under Special Conditions (page 7 of this form). Mulch materials, application rates, and anchoring methods must meet the criteria set forth in the INDIANA DRAINAGE HANDBOOK, Section 5.11 from the Division of Water, Indiana Department of Natural Resources (October 1996) or INDIANA HANDBOOK FOR EROSION CONTROL IN DEVELOPING AREAS, Sub-Section 3.1 from the Division of Soil Conservation, Indiana Department of Natural Resources (October 1992)
☑ ER70	Revegetate all spoil materials deposited in areas not used for crop production
☐ ER72	Use appropriate structural armament in channel straightening transition areas to blend with the existing channel. Use one of the appropriate structural armament practices listed in Section 5.5 of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996)
☐ ER73	Install appropriate armament below pipe outfalls
☐ ER74	Install drop structures where needed to convey runoff from adjacent areas to the channel without causing erosion
☐ ER75	Where vegetation alone is not sufficient to prevent erosion in channel bends, use one of the appropriate structural armament practices listed in Section 5.5 of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996)
☑ ER76	A representative of the Surveyor's Office or their contractor shall inspect erosion and sediment control practices daily and repair as necessary until all construction is complete and disturbed areas are permanently stabilized

IDNR-SEA 368 FIELD REVIEW CONDITIONS (continued)

The following checked-off items are the Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.

Reference	Condition
☑ ER78	Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse
☑ FW02	All work must conform with the existing bank at the upstream and downstream limits of the project site
☑ FW03	Except for trees cabled in-place for bank protection, do not leave felled trees, brush, or other debris in the floodway
☐ FW21	Align spoil piles parallel to flow; the toe of the spoil piles must be located at least 10 feet landward of the top of the streambank; and a _____-foot opening must be provided every _____-feet along the spoil piles' length
☐ FW33	The plans for the project must include information that demonstrates that the project will not result in the lowering of _____ Lake, below its: 1) legally established water level of _____ feet, NGVD 2) average normal water level of _____ feet, NGVD, as determined from USGS lake level records, or 3) average water level of _____ feet, NGVD, as determined by the action of the water that has marked upon the soil of the bed of the lake a character distinct from that of the bank with respect to vegetation as well as the nature of the soil
☐ FW34	Do not alter the average normal water level of _____ Lake; if the average normal water level of the lake is altered, it will be the responsibility of the _____ County Drainage Board to take corrective actions to restore the average normal water level of the lake and to mitigate for any damages incurred
☐ FW35	Place all excavated materials at least 10 feet landward of the top of the ditch bank; spread all excavated materials evenly to a thickness not to exceed _____ and slope landward from the channel or completely remove from the floodway
☐ NP01	Avoid adverse impacts to the following state listed species: _____
☐ OR03	This project will occur within a section of _____ that has been designated as a _____ under the Indiana Natural, Scenic, and Recreational River System (IC 14-29-6). The applicant must contact _____ at 317-232-4070 for more information regarding this permit

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IDEM-SEA 368 FIELD REVIEW CONDITIONS

The following checked-off items are the Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.

Reference	Condition
☑ IDEM01	Submit an application to IDEM for Section 401 Water Quality Certification if the Corps requires an individual Section 404 permit, a Regional General Permit[1] for impacts greater than 0.1 acre, or a Nationwide Permit for which IDEM has denied Water Quality Certification. Application forms are available through the IDEM office. [1] *The activity will impact (fill) more than one-tenth (0.1) of an acre of Waters of the United States, including wetlands, special aquatic sites, creeks, ditches, streams, rivers, deep water areas, or open water areas; or the activity will impact (fill) more than 300 linear feet of stream channel or shoreline.*
☑ IDEM02	Avoid and minimize impacts (filling or mechanical clearing)[2] of jurisdictional wetlands to the greatest extent possible, and provide acceptable compensatory mitigation for all unavoidable impacts to jurisdictional wetlands greater than 0.1 acre. [2] *Mechanical clearing is the use of heavy equipment to push, pull, scrape, or excavate woody vegetation in order to remove it.*
☑ IDEM03	Field mark the area where the filling or mechanical clearing of wetlands is unavoidable.
☑ IDEM04	Use solid tile and anti-seep collars on the portion of the tile line that transects the wetland.
☑ IDEM05	Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse.
☑ IDEM06	Limit the physical disturbance of banks, other soils, and existing vegetation to that which is necessary to achieve the purpose of the project.
☑ IDEM07	Deposit dredged material on upland, or old spoils that are considered upland.
☑ IDEM08	Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only.
☐ IDEM09	Perform daily seeding of the ditch banks if the project is conducted during the agricultural growing season; seed the ditch banks as soon as possible if the project activity occurs during the dormant season.
☑ IDEM10	Conduct logjam removal and tree preservation consistent with the practices established in the *Indiana Drainage Handbook*. The handbook was prepared in accordance with State of Indiana Public Law 329-1995 to serve as an administrative and technical guide for drainage activities within Indiana streams and ditches.
☑ IDEM11	Encourage landowners affected by this project to place grassed filter strips on land immediately bordering the stream. The federal *Conservation Reserve Program* offers competitive annual payments for this practice on a continual sign-up basis. In addition, certain areas may qualify for special cost share or incentive programs for the establishment of filter strips. Contact the local county Soil and Water Conservation District or the Natural Resources Conservation Service for program and practice specific information.
☑ IDEM12	Spread dredged material, where possible, in a manner that will not impede overland flow to the stream. This will help eliminate adjacent berm buildup and associated "points of concentrated flow" that are erosive and require expensive land treatment practices.
☑ IDEM13	Work from only one side of the stream, and where possible, from the side of the stream which does not have adjacent wetlands. If no wetlands are present, work from the side with the fewest trees and woody vegetation. If both banks are equally vegetated, work only from the north or east side, whichever is appropriate.

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IDEM-SEA 368 FIELD REVIEW CONDITIONS (continued)

The following checked-off items are the Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.

Reference	Condition
☑ IDEM14	Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Water's Environmental Unit.
☐ IDEM15	For salmonid streams, do not work in the waterway from March 15 through June 15 and from July 15 through November 30 without the prior written approval of the Division of Water's Environmental Unit.
☑ IDEM16	Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3 inches in diameter, living or dead, with loose hanging bark or with cracks, crevices, or cavities) from April 1 through September 30
☑ IDEM17	Ensure that the contractor performing the work complies with Section 311 of the Federal Clean Water Act and with 327 IAC 2-6.1 concerning spills of oil and/or hazardous materials.

SEA 368 FIELD REVIEW SPECIAL CONDITIONS

The following checked-off items are:

☐ IDNR — *The Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.*

☐ IDEM — *The Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.*

Agency		Reference	Condition
☑ IDNR	☐ IDEM	(SP01)-	Keep all spoils out of the Floodway as defined as that shown on Panels 18089C0261E and 18089C0262E of the County of Lake Flood Insurance Rate Map dated January 18, 2012.
☐ IDNR	☐ IDEM	(SP02)-	
☐ IDNR	☐ IDEM	(SP03)-	
☐ IDNR	☐ IDEM	(SP04)-	

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ATTENDEE RECOMMENDATION

Signature of Attendee	Agree with all project conditions checked	Agree with all project conditions except the following	Disagree with all project conditions checked
Nicole Solitro ☑ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Marty Maupin ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☑ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Erin Basiger ☐ WATER ☑ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐

ADDITIONAL COMMENTS

DISPUTED CONDITIONS

CODE	REASON

ATTENDEE RECOMMENDATION

Signature of Attendee	Agree with all project conditions checked	Agree with all project conditions except the following	Disagree with all project conditions checked
Nicole Johnson ☑ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Marty Mawson ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☑ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Erin Basiger ☐ WATER ☑ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Daniel V. Grossman ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☒ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☒		☐
Jamie Cook ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☒ OTHER CBBEL	☒		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐

ADDITIONAL COMMENTS

DISPUTED CONDITIONS

CODE	REASON

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5-B-2
8-17-16

Environmental Programs

State Revolving Fund Loan Programs

Drinking Water, Wastewater, Nonpoint Source

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

CITY OF CROWN POINT
Addendum No. 1
SRF PROJECT WW 14 33 45 04

DATE: July 21, 2016

TARGET PROJECT APPROVAL DATE: August 22, 2016

I. INTRODUCTION

The above entity has applied to the Clean Water State Revolving Fund (SRF) Loan Program for a loan to finance all or part of the wastewater project described in the accompanying Environmental Assessment (EA). As part of facilities planning requirements, an environmental review has been completed which addresses the project's impacts on the natural and human environment. This review is summarized in the attached EA, which can also be viewed at http://www.in.gov/ifa/srf/.

II. PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT (FNSI)

The SRF Clean Water Program has evaluated all pertinent environmental information regarding the proposed project and determined that an Environmental Impact Statement is not necessary. Subject to responses received during the 30-day public comment period, and pursuant to Indiana Code 4-4-11, it is our preliminary finding that the construction and operation of the proposed facilities will result in no significant adverse environmental impact. In the absence of significant comments, the attached EA shall serve as the final environmental document.

III. COMMENTS

All interested parties may comment upon the EA/FNSI. Comments must be received at the address below by the target approval date above. Significant comments may prompt a reevaluation of the preliminary FNSI; if appropriate, a new FNSI will be issued for another 30-day public comment period. A final decision to proceed, or not to proceed, with the proposed project shall be effected by finalizing, or not finalizing, the FNSI as appropriate. Comments regarding this document should be sent within 30 days to:

April Douglas
Senior Environmental Manager
State Revolving Fund
100 N. Senate Ave. IGCN 1275
Indianapolis, IN 46204
317-234-7294; adouglas@ifa.in.gov

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ENVIRONMENTAL ASSESSMENT

I. PROJECT IDENTIFICATION

Project Name and Address:	**Addendum No. 1** **Indiana Avenue/Greenview Place** **Sewer Replacement** City of Crown Point 101 N. East Street Crown Point, IN 46307
SRF Project Number:	WW 14 33 45 04
Authorized Representative:	The Honorable David Uran, Mayor

II. PROJECT LOCATION

The project is located in Lake County, Center Township, Crown Point USGS Quadrangle, township 34N, range 8W, section 16. See Figures 1 and 2.

III. PROJECT NEED AND PURPOSE

The intersection of Indiana Avenue and Greenview Place experiences both sewage back-up into area residences and flooding during rain events. Flooding poses potential hazards to traffic at the intersection and combined sewage should not be permitted to back-up into homes. The City proposes to route more storm water out of the intersection during storm events. The flow through the existing east trunk line routes through the Broadway Street Lift Station and continues to the Madison Street Lift Station. Due to the additional flows desired to be redirected through this trunk line, the capacity of Broadway Street Lift Station will need to be increased. This capacity increase has been designed and is included as a part of the City's Long Term Control Plan project.

IV. PROJECT DESCRIPTION

The pipe will be increased from 8" to 12". This pipe will route additional storm flows to the east trunk line. Either open cut construction or pipe bursting will be used to install the new pipe in this area. Excavation will be minimized to cause the least impact possible to the stream. The limits of disturbance is estimated at 10 feet wide. It is anticipated that trenching will be done using shoring or benching in order to minimize the limits of disturbance. All disturbed ground will be returned to the original state as soon as possible after work is complete.

V. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING

City of Crown Point will finance the projects estimated cost of $55,000 with funds from an existing loan from the State Revolving Fund Loan Program.

VI. Description of Evaluated Alternatives

The **"No Action"** alternative is not practical, environmentally sound nor economical. Continued use of the existing 8" pipe would lead to continued backups and flooding of the area as the pipe has insufficient capacity to handle flow, which would not address the Long Term Control Plan.

Intersection Improvements: The pipe will be increased from 8" to 12". This pipe will route additional storm flows to the east trunk ling. This is the selected alternative to relieve storm water from entering the combined sewer.

VII. Environmental Impacts of the Feasible Alternatives

A. Direct Impacts of Construction and Operation

Disturbed/Undisturbed Land: The land is previously disturbed by previous construction activity and the project will be implemented in the right of way.

Structural Resources: Construction and operation of the project will not alter, demolish or remove historic properties. If any visual or audible impacts to historic properties occur, they will be temporary and will not alter the characteristics that qualify such properties for inclusion in or eligibility for the National Register of Historic Places. The SRF's finding pursuant to Section 106 of the National Historic Preservation Act is: "*no historic properties affected.*"

Surface Waters: The project will not adversely affect outstanding state resource waters listed in 327 IAC 2-1.3-3(d), exceptional use streams listed in 327 IAC 2-1-11(b), Natural, Scenic and Recreational Rivers and Streams listed in 312 IAC 7-(2), or Salmonid Streams listed in (327 IAC 2-1.5-5(a)(3) or streams on the Outstanding River List for Indiana.

It is anticipated that the project will cross the ditch and that dewatering will be required for installation of the 12" pipe. This water will be conveyed to an adjacent storm sewer. Bypass pumping is also anticipated. Sewage will be conveyed to a sanitary manhole.

Wetlands (Figure 3): Figure 3 indicates that the ditch is located a bit further south than shown by the National Wetland Inventory, and as such the project does cross the ditch. The ditch is a riverine wetland and will be temporarily impacted by the project.

Mitigation measures to lessen and compensate for wetland impacts cited in comment letters about the project from the Indiana Department of Natural Resources and the U.S. Fish and Wildlife Service will be implemented.

Floodplain: The project will not include dredge or fill in the floodway without a permit from IDNR Division of Water. No change in grade will occur within the floodplain.

Groundwater: The project will not impact a drinking water supply or sole source aquifer.

Plants and Animals: A 12" and 18" storm and sanitary sewer currently exist in the potential cross country route through the ravine area in an established utility corridor. Any overgrown bush within the utility corridor will be removed for the replacement and installation of the sewers.

Prime Farmland: The project will not convert prime farmland.

Air Quality: Construction activities may generate some noise, fumes and dust, but should not significantly affect air quality.

Open Space and Recreational Opportunities: The project will neither create nor destroy open space or recreational opportunities.

Lake Michigan Coastal Program: The project will affect the Lake Michigan Coastal Zone.

National Natural Landmarks: Construction and operation of the proposed project will not affect National Natural Landmarks.

B. Indirect Impacts

The city's Addendum No. 1 states: *The City of Crown Point, through the authority of its council, planning commission, or other means will ensure that future development, as well as future collection system or treatment works projects connecting to SRF-funded facilities, will not adversely impact wetlands, wooded areas, steep slopes, archaeological/historical/structural resources or other sensitive environmental resources. The City will require new development and treatment works projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, IDNR, IDEM, and other environmental review authorities.*

C. Comments from Environmental Review Authorities

This is the first notice to the United States Fish and Wildlife Service and the Department of Natural Resources Environmental Unit. The Natural Resources Conservation Service was not contacted because the proposed project will not cause a conversion of prime farmland.

In correspondence dated July 8, 2016, the Indiana Department of Natural Resources Division of Historic Preservation and Archaeology stated:

Pursuant to IC 13-18-21 and 327 IAC 14 and Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) and 36 C.F.R. Part 800, the Indiana State Historic Preservation Officer ("Indiana SHPO") is conducting an analysis of the materials dated July 8, 2016 and received by the Indiana SHPO on the same day, for the above indicated project in Crown Point, Center Township, Lake County, Indiana.

Based on our analysis, it has been determined that no historic properties will be altered, demolished, or removed by the proposed project. No archaeological investigations appear necessary provided that all project activities remain within areas disturbed by previous construction.

As stated in our letter dated June 16, 2016, we note that project activities may be within 100 feet of a cemetery (CR-45-80, Historic Maplewood Cemetery). Please be aware of the cemetery development plan requirement in Indiana Code 14-21-1-26.5 ... regarding ground disturbance within 100 feet of a cemetery. In addition, please be aware of the restrictions on utility construction in Indiana Code (IC) 23-14-44-1 ...

If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 & 29) requires that the discovery must be reported to the Department of Natural Resources within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 & 29 does not obviate the need to adhere to applicable federal statutes and regulations, including not bot limited to 36 C.F.R. Part 800.

VIII. Mitigation Measures

The City of Crownpoint's Addendum No. 1 states:

The majority of the environmental impacts will occur during construction of the proposed improvements. These issues will be temporary in nature, since no significant impacts to environmental, historical, or other regulated resources are involved. These temporary construction impacts include the potential for noise, dust, and construction site erosion. Provisions will be included in the construction specifications to limit such problems and to provide erosion control in accordance with current state standards. The work is expected to be completed during normal working hours, restricting any work related nuisances to those hours. All construction equipment will be required to have mufflers to reduce noise pollution. Additionally, reasonable and proper construction techniques and clean up practices will be required by the contractor to reduce dust emissions. Proper surface wetting practices will be required. Erosion control measures including seeding, drainage inlet protection, and silt fencing will also be utilized.

IX. Public Participation

A public notice was published on July 15, 2016 in the Northwest Indiana Times. No written comments were received during the 5-day comment period following the public notice.

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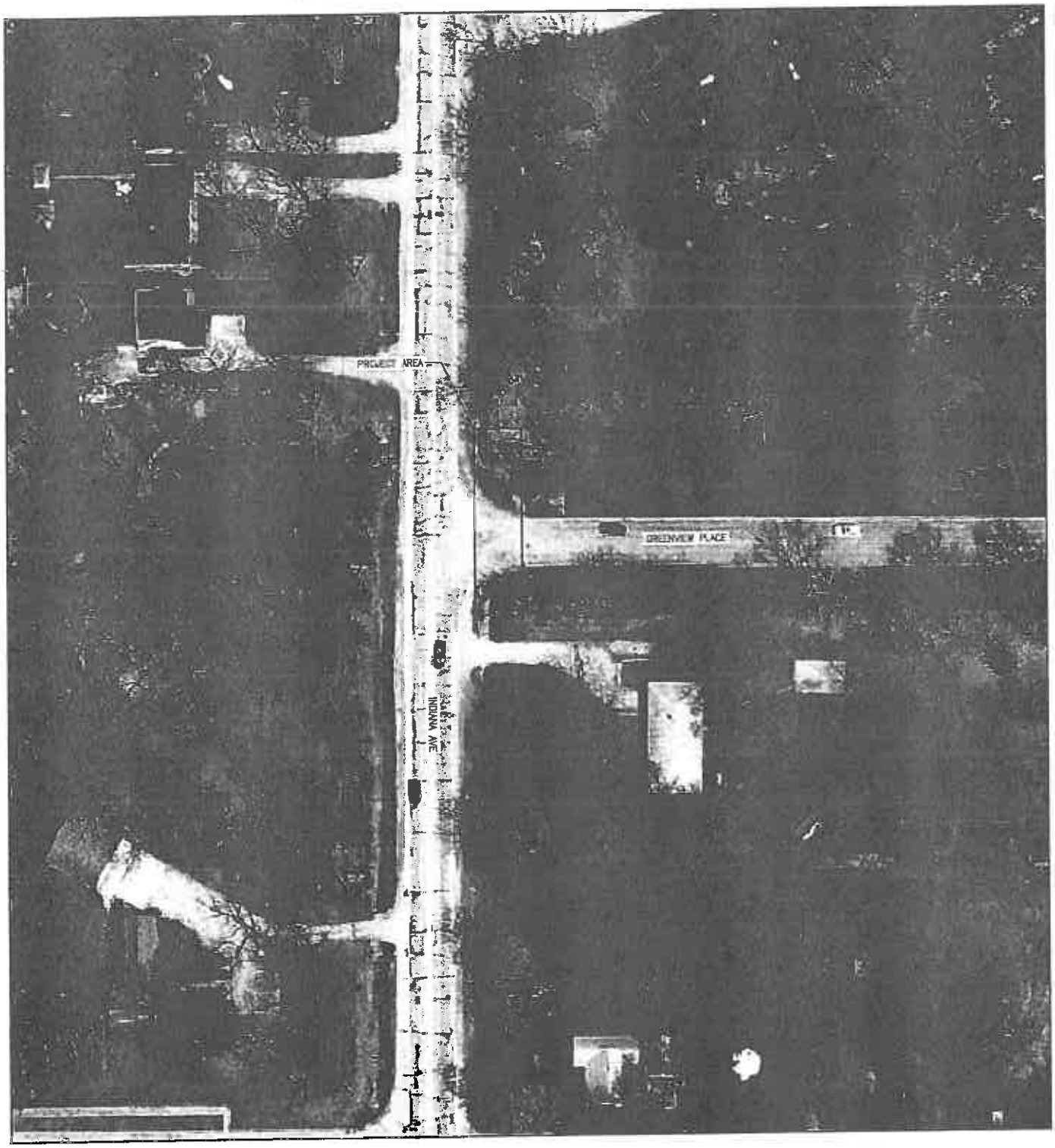
Figure 1 - Indiana Ave. and Greenview Place



June 9, 2016

1:1,000

0 0.0075 0.015 0.03 mi

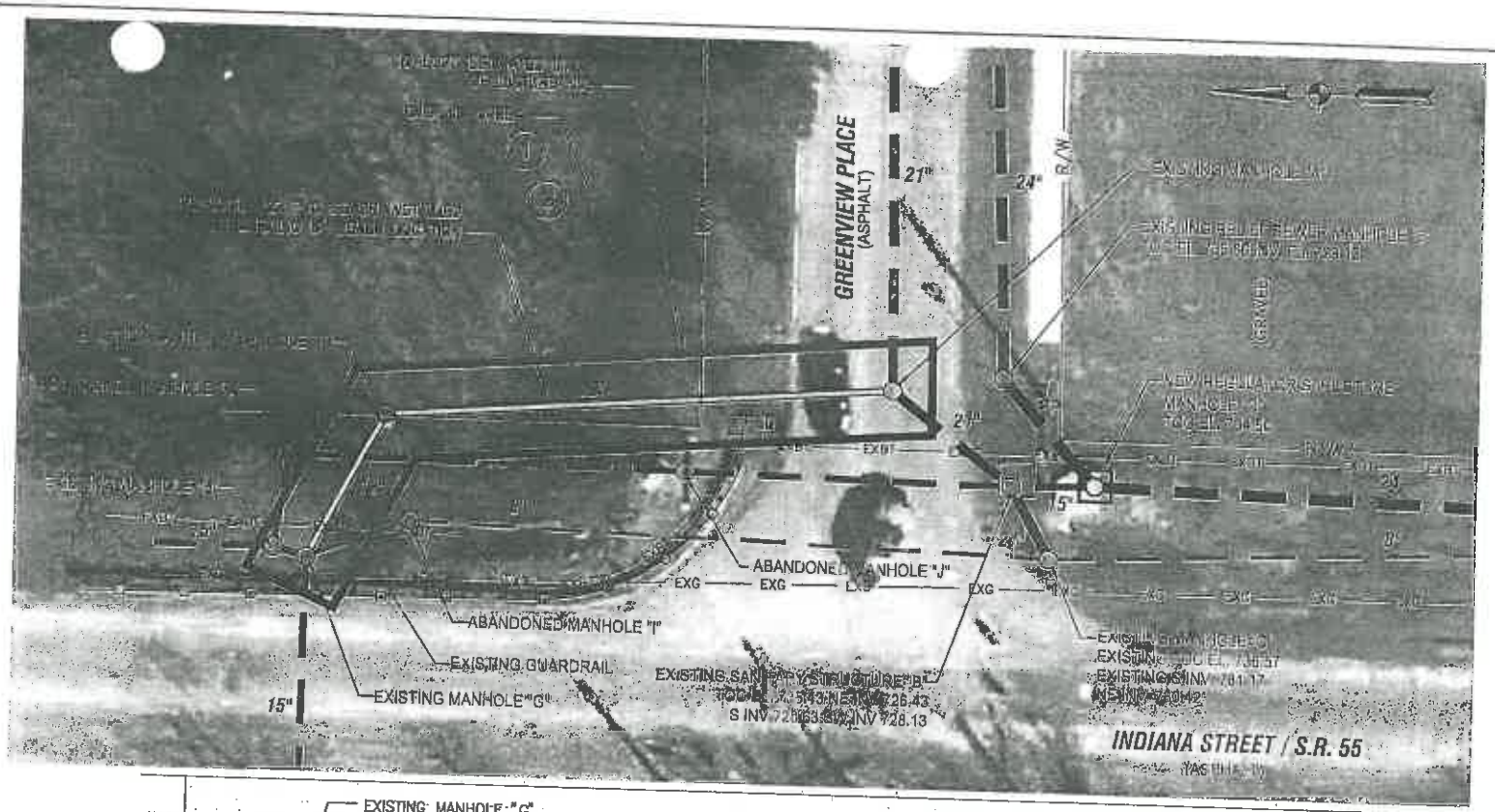
0 0.0125 0.025 0.05 km

COMMONWEALTH ENGINEERS, INC.

CITY OF CROWN POINT, INDIANA
PER ADDENDUM NO. 1

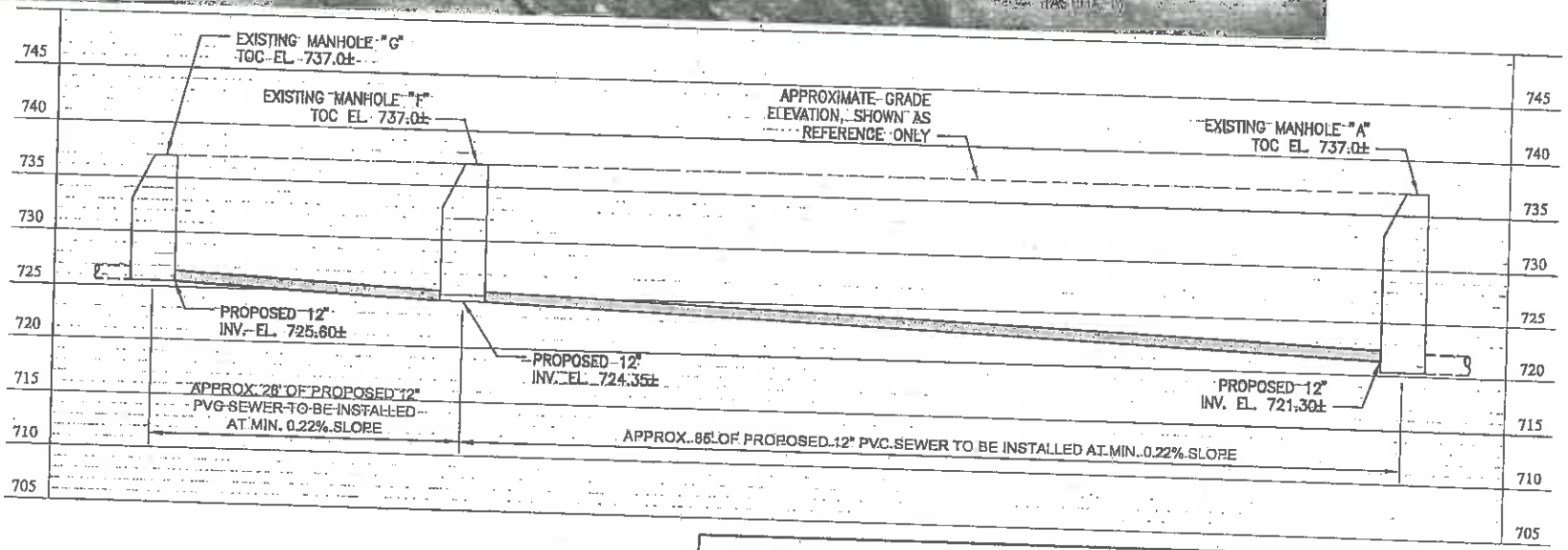
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT

INDIANA AVE. AND GREENVIEW PLACE



CODED NOTE:

1. - CONTRACTOR SHALL CONFIRM PRIOR TO CONSTRUCTION ACTIVITIES OR ORDERING OF MATERIALS IF EXISTING PIPE CASING EXISTS AT CREEK CROSSING.
2. - INSTALL 24" STEEL CASING AROUND NEW 12" SEWER MAIN IF THERE IS NO CASING PRESENTLY INSTALLED FOR THE EXISTING SEWER PIPING.



COMMONWEALTH ENGINEERS, INC.

CITY OF CROWN POINT
LAKE COUNTY, INDIANA

INTERSECTION OF INDIANA AVE. AND GREENVIEW PL.

EXISTING SEWER LAYOUT – PROJECT #4 IMPROVEMENTS

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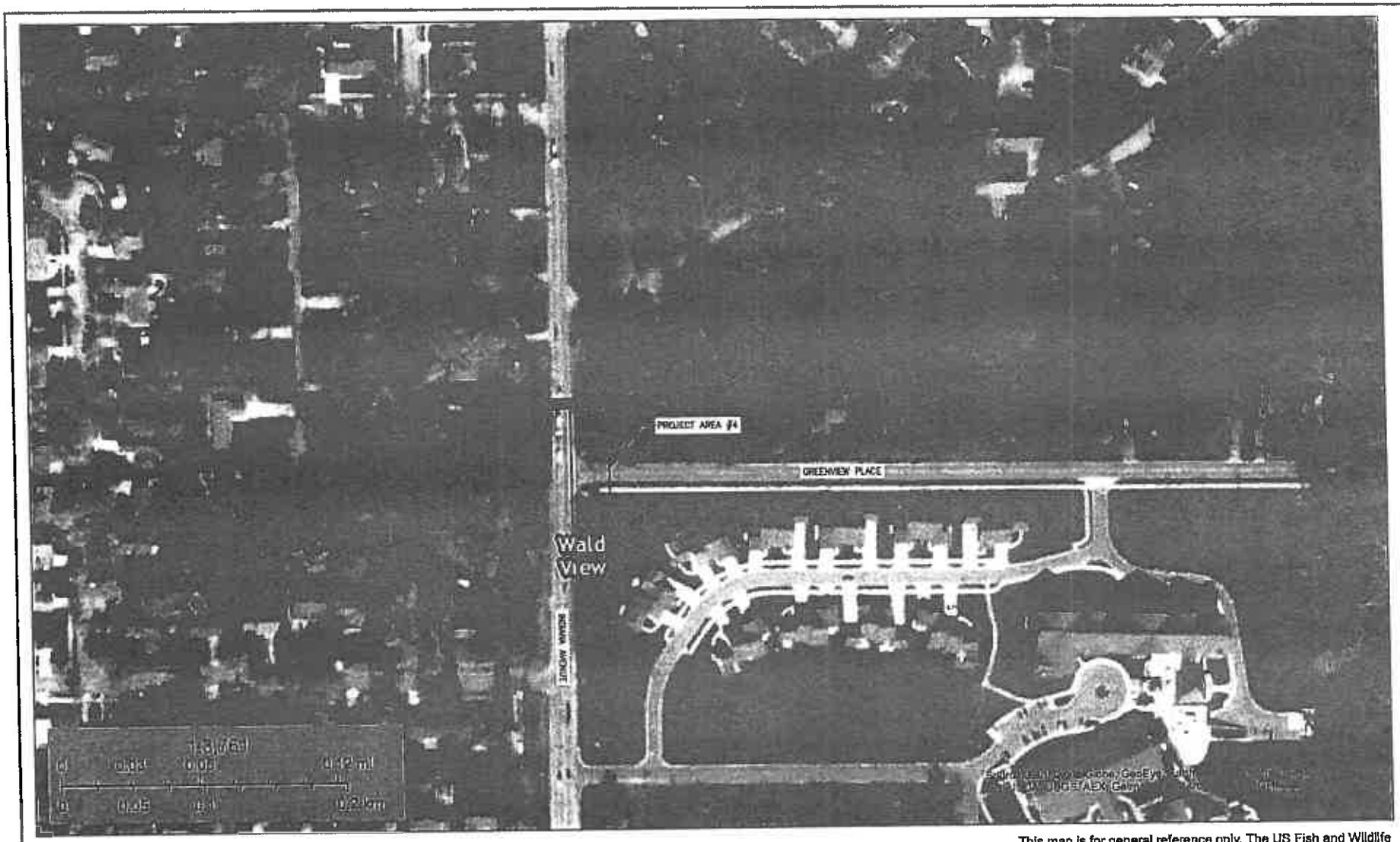
Figure 2 – Proposed project



June 9, 2016

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

COMMONWEALTH ENGINEERS, INC.

CITY OF CROWN POINT, INDIANA
PER ADDENDUM NO. 1

WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT

WETLANDS MAP – PROJECT #4

Figure 3 – Wetlands map

5-B-3
8-17-16

DNR Indiana Department of Natural Resources

Michael R. Pence, Governor
Cameron F. Clark, Director
Division of Water
402 West Washington Street
Room W264
Indianapolis, IN 46204-2641
Phone (317) 232-4160
Toll-free (877) 928-3755
Fax (317) 233-4579
www.in.gov/dnr/water/

July 29, 2016
Basin 1

Kerry Daily
Christopher B. Burke Engineering, LLC
115 West Washington Street, Suite 1368 South
Indianapolis, IN 46204

MAILED JUL 29 2016

Re: CTS-4252
Burns Ditch, Lake County

Dear Mr. Daily:

Thank you for your letter received July 7, 2016 notifying the Department of your proposed construction project within the Lake Station Wetland Mitigation Bank. The project site is located in Section 8, Township 36 North, Range 7 West, near Lake Station, Hobart Township, Lake County.

The construction project detailed in the information submitted on July 7, 2016 and July 20, 2016, qualifies for a general license as a wetland restoration measure, as outlined under 312 IAC 10-5-1, and is therefore exempt from the permitting requirements of the Flood Control Act, IC 14-28-1.

You should not construe this letter to be a building permit, approval of the proposed project or a waiver of the provisions of local building or zoning ordinances. Additionally, this letter does not relieve you of the responsibility of obtaining permits, approvals, easements, etc. as required by other federal, state and local agencies.

Thank you for this opportunity to be of assistance; your interest in providing safe floodplain development is appreciated. If you have any questions regarding this letter, please contact Larissa Muellner, Technical Services, at lmuellner@dnr.in.gov, 317-234-1109 or toll free at 1-877-928-3755.

Sincerely,

James J. Hebensteit, PE
Assistant Director
Division of Water

JJH/llm

cc: IDNR Division of Law Enforcement, District 10
Dewey Lemley, Floodplain Administrator
Corps of Engineers, Chicago District
Steve Davis, IDNR Division of Water
Little Calumet River Basin Development
Lake County SWCD
Lake County Drainage Board

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8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 2, 2016

Anthony Schlueter
Planning Administrator
City of Crown Point
11035 Broadway, Suite E
Crown Point, Indiana 46307

RE: I-65 Partners Beacon Hill, LLC
Beacon Hill – Phase 2 (2 Lots), Primary Subdivision Plat

Dear Mr. Schlueter,

The Lake County Surveyor's office is requesting additional information regarding the proposed Beacon Hill – Phase 2 subdivision. It appears that this property is in close proximity to Main Beaver Dam Ditch and Beaver Dam Ditch Lateral No. 1 (a.k.a. Smith Ditch) which are 2 county regulated drains. If you have the plans in a digital format that could be emailed, we would be able to do a quick review to determine if a county permit is required.

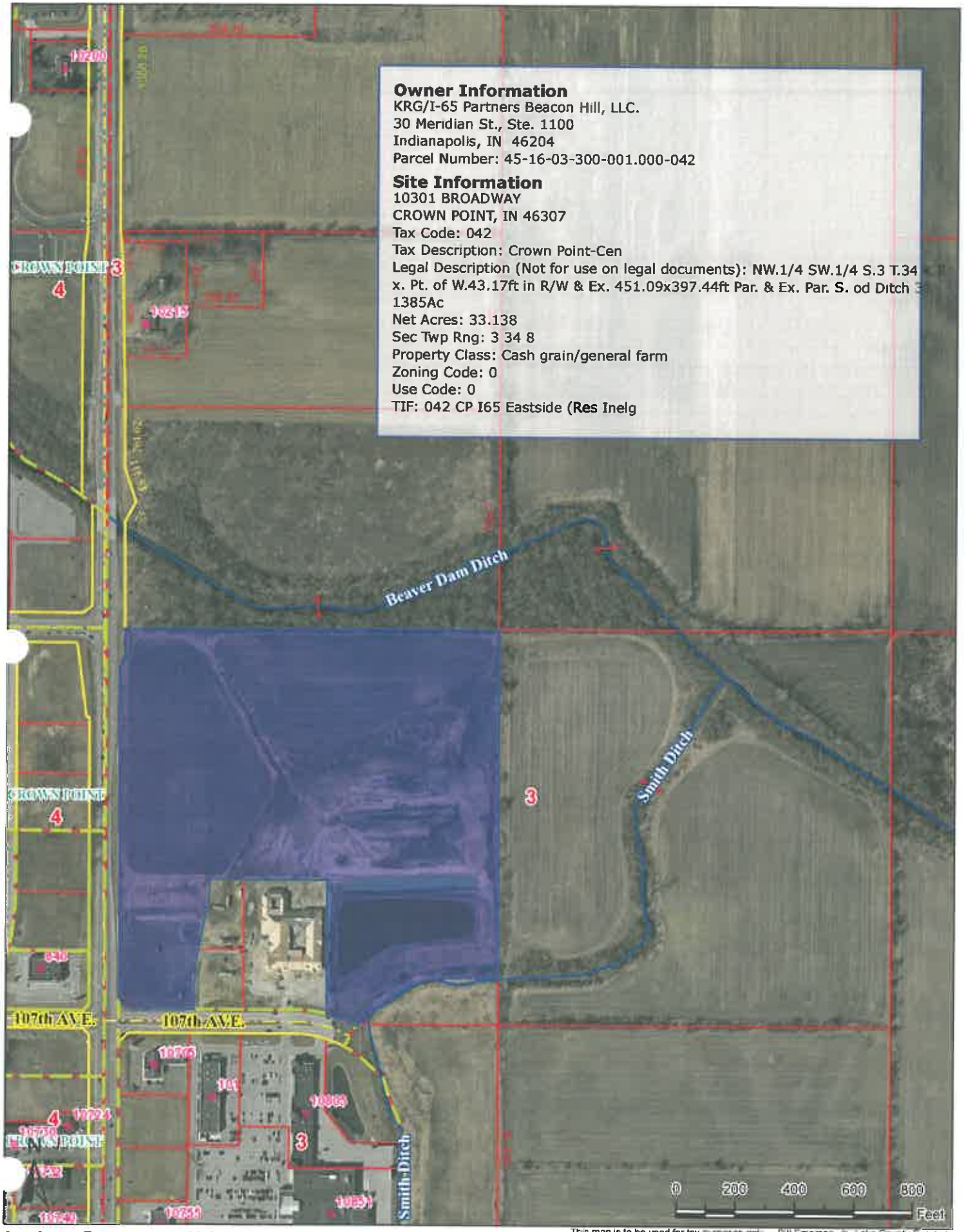
We appreciate your assistance in this, and look forward to our continued cooperation with you and the City of Crown Point. Should you have any questions, please do not hesitate to contact me or County Surveyor Bill Emerson, Jr.

Sincerely,

Daniel V. Gossman

Daniel V. Gossman
Drainage Administrator

Cc: Bill Emerson, Jr., Lake County Surveyor
David D.F. Uran, Mayor City of Crown Point
David Hubinger, Center Township Advisory Committee Representative
Lake County Drainage Board & Advisory Committee



Owner Information
KRG/I-65 Partners Beacon Hill, LLC.
30 Meridian St., Ste. 1100
Indianapolis, IN 46204
Parcel Number: 45-16-03-300-001.000-042

Site Information
10301 BROADWAY
CROWN POINT, IN 46307
Tax Code: 042
Tax Description: Crown Point-Cen
Legal Description (Not for use on legal documents): NW.1/4 SW.1/4 S.3 T.34
x. Pt. of W.43.17ft in R/W & Ex. 451.09x397.44ft Par. & Ex. Par. S. od Ditch
1385Ac
Net Acres: 33.138
Sec Twp Rng: 3 34 8
Property Class: Cash grain/general farm
Zoning Code: 0
Use Code: 0
TIF: 042 CP I65 Eastside (Res Inelg

This map is to be used for tax purposes only. - Bill Emerson, Jr., Lake County Surveyor

Lake County, IN
Date Printed: August 2, 2016

Daniel Gossman

From: Daniel Gossman
Sent: Tuesday, August 02, 2016 4:13 PM
To: 'Anthony Schlueter'
Cc: Emerson, Bill J; Dave Uran; David Hubinger
Subject: RE: Plan Commission Item 16-31

Thanks for the quick response. Everything looks free and clear of our regulated drains. I wasn't sure how far north the proposed development was going, but it is well south of Main Beaver Dam Ditch.

Thanks Again!
Dan

Daniel V. Gossman
Senior Drainage Administrator

Office of the Lake County Surveyor
Bill Emerson, Jr. County Surveyor
2293 North Main Street
Crown Point, Indiana 46307
Phone: (219) 755-3745
Fax: (219) 755-3750

Please consider the environment before printing this e-mail.

From: Anthony Schlueter [mailto:aschlueter@crownpoint.in.gov]
Sent: Tuesday, August 02, 2016 4:02 PM
To: Daniel Gossman
Cc: Emerson, Bill J; Dave Uran; David Hubinger
Subject: Re: Plan Commission Item 16-31

Hi Dan

Attached are the engineering plans for the next phase of the Beacon Hill Subdivision.

If you need anything else let me know.

Anthony Schlueter
Planning Administrator
City of Crown Point
219-661-5039

From: Daniel Gossman <gossmdv@lakecountyin.org>
Sent: Tuesday, August 2, 2016 3:48:05 PM
To: Anthony Schlueter
Cc: Emerson, Bill J; Dave Uran; David Hubinger
Subject: Plan Commission Item 16-31

Mr. Schlueter,

Attached for your review is a letter referencing an item under new business on the upcoming meeting. Please let me know if you have any questions.

Thanks
Dan

Daniel V. Gossman
Senior Drainage Administrator

Office of the Lake County Surveyor
Bill Emerson, Jr. County Surveyor
2293 North Main Street
Crown Point, Indiana 46307
Phone: (219) 755-3745
Fax: (219) 755-3750

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IMPORTANT NOTICE: This e-mail message is intended to be received only by persons entitled to receive the confidential information it may contain. E-mail messages to clients of the City of Crown Point may contain information that is confidential and legally privileged. Please do not read, copy, forward, or store this message unless you are an intended recipient of it. If you have received this message in error, please forward it to the sender and delete it completely from your computer system.
IMPORTANT NOTICE: This e-mail message is intended to be received only by persons entitled to receive the confidential information it may contain. E-mail messages to clients of the City of Crown Point may contain information that is confidential and legally privileged. Please do not read, copy, forward, or store this message unless you are an intended recipient of it. If you have received this message in error, please forward it to the sender and delete it completely from your computer system.

5-B-5
8-17-16

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

TERMINATION NOTICE
CONSTRUCTION IN A FLOODWAY

APPLICATION # : FW-28423 **MAILED: August 02, 2016**

STREAM : Unnamed Tributary Lake George Canal

APPLICANT : BP Products North America Inc
Don Porter
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

AGENT : BP Products North America Inc
Rosalie Herrera
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

AUTHORITY : IC 14-28-1 with 312 IAC 10

DESCRIPTION : A 38'-4" by 30'-6" area will be filled along a basin adjacent to the canal for the construction of a concrete pad. The fill will vary in depth from 2.5' on the landward side to approximately 1.5' on the streamward side. It will be set 9'-6" back from the top of the bank (low water line) and will have approximately 5:1 sideslopes. The finished elevation of the fill will be 584', NGVD. The concrete pad will be constructed on top of the completed stone fill. Approximately 23% of the shoreline will be maintained at a natural shallow slope to encourage the development of wetland vegetation. Details of the project are contained in information received electronically at the Division of Water on May 26, 2016 and in plans and information received at the Division of Water on June 2, 2016.

LOCATION : Approximately 1100' north and 1400' east of the Toll Road crossing over US 41 near Hammond, Calumet Township, Lake County
Section 19, T 37N, R 9W, Whiting Quadrangle
UTM Coordinates: Downstream 4610798 North, 458069 East

TERMINATED BY : James J. Hebenstreit

James J. Hebenstreit, PE, Assistant Director
Division of Water

TERMINATED ON : August 02, 2016

Included: Notice Of Right To Administrative Review - Termination Reasons - Service List

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

APPLICATION #: FW- 28423

This signed document constitutes the termination of your application by the Department of Natural Resources.

The termination may be appealed by applying for administrative review. The review will be governed by the Administrative Orders and Procedures Act, IC 4-21.5, and the Department's rules pertaining to adjudicative proceedings, 312 IAC 3-1.

In order to obtain a review, a written petition containing the specific reasons for the appeal must be filed with the Division of Hearings within 18 days of the mailing date of this notice. The petition should be addressed to:

Director
Division of Hearings
Indiana Government Center North, Room N501A
100 North Senate Avenue
Indianapolis, Indiana 46204

If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel.

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

Termination Reasons

APPLICATION #: FW- 28423

Based on information received by the Department of Natural Resources on May 26, 2016 and June 2, 2016, this permit application was terminated on August 2, 2016 for the reason(s) listed below.

If there will be any deviation from the submitted information, or if work is proposed at the site in the future, the Department should be contacted to determine the potential permit requirements.

Number	Termination Reason
(1)	the drainage area above the downstream end of the project site is less than 1 square mile

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 28423

BP Products North America Inc
Don Porter
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

BP Products North America Inc
Rosalie Herrera
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

BP Products North America Inc
Justin Button
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

BP Products North America Inc
Jennifer Swilik
2815 Indianapolis Boulevard
Whiting, IN 46394-2197

Indiana Department of Natural Resources
Steve Davis
100 West Water Street
Michigan City, IN 46360-1310

Indiana Department of Natural Resources
Division of Law Enforcement
District 10 Headquarters
100 West Water Street
Michigan City, IN 46360

Lake County Drainage Board
2293 North Main Street
Crown Point, IN 46307

Lake County SWCD
880 East 99th Court, Suite A
Crown Point, IN 46307

Little Calumet River Basin Development Commission
Dan Repay
900 Ridge Road
Munster, IN 46321

Mr. Don Novak
5925 Calumet Avenue, Ground Floor
Hammond, IN 46320

US Army Corps of Engineers
Chicago District
231 South LaSalle Street, Suite 1500
Chicago, IL 60604

Staff Assignment:

Administrative : Larissa Muellner, CFM
Technical : Larissa Muellner, CFM

5-C-1
8-17-16

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
477 MICHIGAN AVENUE
DETROIT MI 48226-2550

RECEIVED
JUL 18 2016
LAKE COUNTY SURVEYOR

REPLY TO
ATTENTION OF:

July 15, 2016

Engineering & Technical Services
Regulatory Office
File No. LRL-2016-46-LCL

Dear Sir/Madam:

We are writing to inform you that the Detroit District has posted a public notice to our internet home page for the proposed project noted below.

File Number: LRL-2016-46-LCL
Applicant: Indiana Department of Natural Resource
Location: Statewide
Waterway: All waters of the United States

This notice announces the intent to establish a Letter of Permission (LOP) by the Louisville, Detroit, and Chicago Districts U.S. Army Corps of Engineers (the Districts), in accordance with Title 33 CFR 325.5 (b) (2), published in the Federal Register, Volume 51, No. 219, pursuant to Section 10 of the Rivers and Harbors Act of 1899 ("Section 10") and Section 404 ("Section 404") of the Clean Water Act (CWA). Please visit our website (link below) to view the complete Public Notice and for information on how to submit comments.

http://www.lre.usace.army.mil/Missions/RegulatoryProgramandPermits/PublicNotices.aspx

Sincerely,

Regulatory Office, Detroit District
US Army Corps of Engineers

We would appreciate your feedback. Our National Customer Service Survey is located at http://per2.nwp.usace.army.mil/survey.html

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* If you are receiving this via email:
- Click on the link above to open a browser window if the link is highlighted.
- If the link is not highlighted, open a web browser window and copy/paste the entire address into the address bar of the browser.

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* If you are receiving this via standard mail:
-You have the option to request that a copy of the Public Notice be mailed to you. Please contact Laban L at the above address, by E-Mail at Laban.C.Lindley@usace.army.mil, or by telephone at 317-543-9424 to make your request.
-Be sure to indicate File Number LRL-2016-46-LCL when you make your request.----------

5-B-6
8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 12, 2016

Bill Emerson, Jr
Lake County Surveyor
2293 North Main Street
Crown Point, Indiana 46307

RE: Monthly Report on Clearing and Snagging Crew
Little Calumet River Watershed

Dear Mr. Emerson,

Following are the sites addressed by the crew since mid-July

July 8th – August 8th

Cady Marsh Ditch	Removed Fallen Trees and cleared easement
Turkey Creek Lat #6	Removed Fallen Trees
Beaver Dam Lat #5	Removed Beaver Dam
Cady Marsh Ditch	Removed Beaver Dam
Turkey Creek Lat #5	Removed Beaver Dam

In addition, crew maintained/cleared easements along Johnson Ditch, removed beaver dams and fallen trees at Sprout Ditch, also maintained/ inspected various culvert crossings countywide.

Respectfully,

Thomas Regalado

Thomas Regalado
Assistant Drainage Administrator

Cc: Daniel V. Gossman, Drainage Administrator
Lake County Drainage Board and Advisory Committee

Cady Marsh Ditch
Griffith Pump Station

Calumet Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July192016

Cady Marsh Ditch
Griffith Pump Station

Calumet Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July192016

Turkey Creek Lat # 6

Hobart Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July272016

Turkey Creek Lat # 6

Hobart Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July272016

Beaver Dam Lat # 5
South St.

Center Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July282016

Beaver Dam Lat # 5
South St.

Center Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July282016

Cady Marsh Ditch
Whitcomb & 45th St.

Calumet Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July282016

Cady Marsh Ditch
Whitcomb & 45th St.

Calumet Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: July282016

Turkey Creek
New Elliott

St. John Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug092016

Turkey Creek
New Elliott

St. John Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug092016

5-C-2
8-17-16

DNR Indiana Department of Natural Resources

Michael R. Pence, Governor
Cameron F. Clark, Director
Division of Water
402 W. Washington Street
Room W264
Indianapolis, IN 46204
Phone (317) 232-4160
Toll-free (877) 928-3755
Fax (317) 233-4579
www.in.gov/dnr/water

July 21, 2016

MAILED
JUL 27 2016

Christopher B. Burke Engineering, LLC
Donald C. Oliphant, PE, CFM, CPESC
One Professional Center, Suite 314
Crown Point, IN 46307

Re: CTS-4246 and FW-27235
West Creek, Lake County

Dear Mr. Oliphant:

This is in response to your request received at the Division of Water on July 1, 2016 for the renewal of a Certificate of Approval, FW-27235 (copy attached) which was issued on July 31, 2014.

In your request you provided verification that the permittee and the project plans approved under FW-27235 have not changed. Therefore, in accordance with IC 14-28-1-22(h) the Department is granting a one-time two (2) year renewal of permit number FW-27235.

Please note that if the work authorized by this permit and its renewal, is not completed by July 31, 2018, your permit will expire and a new permit will have to be obtained.

This letter should be attached to the existing permit and displayed at the project site. The Division of Water will place a copy in the permit file to be retained as a permanent part of the application. Please be aware that all conditions of the permit must be met for your project to be in compliance.

If there are any further questions concerning this project, please contact the Technical Services Section, Division of Water at (317) 232-4160 or at sdean@dnr.in.gov.

Sincerely,

James J. Hebenstreit, PE
Assistant Director
Division of Water

JJH/shd

Enclosure: Copy of Certificate of Approval, FW-27235
Notice of Right to Administrative Appeal

pc: Service List for FW-27235

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

File No. CTS-4246

The letter or any of the conditions, limitations, and amendments which it contains may be appealed by applying for administrative review. Such review is governed by the Administrative Orders and Procedures Act, IC 4-21.5, and the Department's rules pertaining to adjudicative proceedings, 312 IAC 3-1.

In order to obtain a review, a written petition must be filed with the Division of Hearings within 18 days of the mailing date of this notice. The petition should be addressed to:

Division of Hearings
Indiana Government Center North, Room N501A
100 North Senate Avenue
Indianapolis, IN 46204

The petition must contain specific reasons for the appeal and indicate the portion or portions of the letter to which the appeal pertains.

If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel.

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL, AFTER-THE-FACT CONSTRUCTION IN A FLOODWAY

APPLICATION # : FW-27235 **MAILED: August 01, 2014**

STREAM : West Creek

APPLICANT : Frank and Shirley Schilling
8900 Wicker Avenue
St John, IN 46373

AGENT : Christopher B Burke Engineering LLC
Thomas T Burke
9575 West Higgins Road Suite 600
Rosemont, IL 60018-4920

AUTHORITY : IC 14-28-1 with 312 IAC 10

DESCRIPTION : Fill has been placed along the top of the north bank of the West Creek Tributary WJ within the east overbank of West Creek to create an earthen berm associated with the construction of a Prayer Path (pedestrian trail). The earthen berm is approximately 1,500' long and varies in height from 6' to 10' above existing elevations. The existing Prayer Path is approximately 1,500' long. An existing single span farm crossing over West Creek has been converted into a pedestrian bridge. Additional proposed project features include: construction of approximately 1,200' of a proposed Return Prayer Path north of the existing path; removal of approximately 1,400' of existing earthen berm along the east bank of West Creek to an elevation of 668.25' NAVD; installation of two sets of 4-barrel box culverts (each barrel has an effective opening of 10' x 2.25') to convey floodwaters through the earthen berm / Prayer Path, a boardwalk will span each set of culverts to maintain Prayer Path access; and construction of two elevated building pads (north site - 500' x 950'; south site - 350' x 150') with a finished pad elevation of 676', NAVD and 3:1 side slopes. Details of the project are contained in information and plans received at the Division of Water on August 2, 2013, October 1, 2013, November 1, 2013, November 12, 2013, March 3, 2014, May 16, 2014, May 19, 2014, June 5, 2014 and June 24, 2014.

LOCATION : Along the east bank beginning about 400' downstream of the confluence of Bull Run Ditch and St. John Ditch, west of Wicker Avenue (US 41) and continuing downstream about 2,900' near St. John, Hanover Township, Lake County
Section 5, T 34N, R 9W, St. John Quadrangle
UTM Coordinates: Downstream 4586062 North, 460686 East

APPROVED BY : George C. Bowman

George C. Bowman, PE, Assistant Director
Division of Water

APPROVED ON : July 31, 2014

Included: Notice Of Right To Administrative Review - General Conditions - Special Conditions - Service List

Attachments: 07312014_FW-27235_FW-27358_Special Condition Map.jpg

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL, AFTER-THE-FACT
CONSTRUCTION IN A FLOODWAY

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

APPLICATION #: FW- 27235

This signed document constitutes the issuance of a permit by the Department of Natural Resources, subject to the conditions and limitations stated on the pages entitled "General Conditions" and "Special Conditions".

The permit or any of the conditions or limitations which it contains may be appealed by applying for administrative review. Such review is governed by the Administrative Orders and Procedures Act, IC 4-21.5, and the Department's rules pertaining to adjudicative proceedings, 312 IAC 3-1.

In order to obtain a review, a written petition must be filed with the Division of Hearings within 18 days of the mailing date of this notice. The petition should be addressed to:

Mr. Stephen L. Lucas, Director
Division of Hearings
Indiana Government Center North, Room N501A
100 North Senate Avenue
Indianapolis, Indiana 46204

The petition must contain specific reasons for the appeal and indicate the portion or portions of the permit to which the appeal pertains.

If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel.

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

GENERAL CONDITIONS

APPLICATION #: FW- 27235

(1) If any archaeological artifacts or human remains are uncovered during construction, federal law and regulations (16 USC 470, et seq.; 36 CFR 800.11, et al) and State Law (IC 14-21-1) require that work must stop and that the discovery must be reported to the Division of Historic Preservation and Archaeology within 2 business days.

Division of Historic Preservation and Archaeology
Room W274
402 West Washington Street
Indianapolis, IN 46204

Telephone: (317) 232-1646, FAX: (317) 232-8036

(2) This permit must be posted and maintained at the project site until the project is completed.

(3) This permit does not relieve the permittee of the responsibility for obtaining additional permits, approvals, easements, etc. as required by other federal, state, or local regulatory agencies. These agencies include, but are not limited to:

Agency	Telephone Number
Kankakee River Basin Commission	(219) 763-0696
Lake County Surveyors Office	(219) 755-3755
US Army Corps of Engineers	(312) 846-5539
Indiana Department of Environmental Management	(317) 233-8488 or (800) 451-6027
Local city or county planning or zoning commission	

(4) This permit must not be construed as a waiver of any local ordinance or other state or federal law.

(5) This permit does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

(6) This permit may be revoked by the Department of Natural Resources for violation of any condition, limitation or applicable statute or rule.

(7) This permit shall not be assignable or transferable without the prior written approval of the Department of Natural Resources. To initiate a transfer contact:

Mr. Michael W. Neyer, PE, Director
Division of Water
Room W264
402 West Washington Street
Indianapolis, IN 46204

Telephone: (317) 232-4160, Toll Free: (877) 928-3755
FAX: (317) 233-4579

(8) The Department of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the authorized work.

(9) The receipt and acceptance of this permit by the applicant or authorized agent shall be considered as acceptance of the conditions and limitations stated on the pages entitled "General Conditions" and "Special Conditions".

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27235

PERMIT VALIDITY : This permit is valid for 24 months from the "Approved On" date shown on the first page. If construction work in the floodway has not been completed by July 31, 2016 the permit will become void. This permit may be renewed one (1) time for a period not to exceed two (2) additional years only if a written request for the two (2) year permit renewal is received by DNR, Division of Water prior to July 31, 2016. Thereafter the permit will become void and a new permit will be required in order to continue work on the project.

This permit becomes effective 18 days after the "MAILED" date shown on the first page. If both a petition for review and a petition for a stay of effectiveness are filed before this permit becomes effective, any part of the permit that is within the scope of the petition for stay is stayed for an additional 15 days.

CONFORMANCE : Other than those measures necessary to satisfy the "General Conditions" and "Special Conditions", the project must conform to the information received by the Department of Natural Resources on: August 2, 2013, October 1, 2013, November 1, 2013, November 12, 2013, March 3, 2014, May 16, 2014, May 19, 2014, June 5, 2014 and June 24, 2014. Any deviation from the information must receive the prior written approval of the Department.

Number	Special Condition
(1)	revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion
(2)	minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush
(3)	do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife
(4)	do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30
(5)	post "Do Not Mow or Spray" signs along the right-of-way
(6)	all excavated material must be properly spread or completely removed from the project site such that erosion and off-site sedimentation of the material is prevented
(7)	appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized
(8)	seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with erosion control blankets (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas
(9)	install appropriate armament below pipe outfalls
(10)	implement the mitigation plan received at the Division of Water on November 12, 2013, within one complete growing season of project initiation

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27235

(11) the mitigation site must be monitored for the survival of the plantings for a minimum of three years; a report must be submitted to the North Region Environmental Biologist at the Division of Fish and Wildlife, 402 W. Washington St., RM W264, Indianapolis, IN 46204-2641 by December 31 of each year to monitor the initiation, progress, and success of the mitigation site; the report must include appropriate pictures of vegetative plantings, a narrative describing the activity accomplished to date, acres planted, number planted, list of species planted on site, and estimated survival; reports must be submitted annually, even if work has not been initiated on site; there shall be a minimum of three full reports beginning after the first complete growing season after the last planting and seeding; reports are required until the mitigation site is complete or determined to be successful; if the mitigation site is not successful three years after work initiation, the permit will be considered out of compliance and another plan must be submitted for approval

(12) the replacement habitat areas must have a minimum survival of 75% of planted material at the end of the monitoring period or additional plant material must be installed to meet the minimum survival

(13) place a restrictive covenant (developed in coordination with a DNR biologist) on the mitigation site property within 60 days of project initiation to protect the mitigation site from any future disturbance; a copy of the covenant must be provided to the Northern Region Environmental Biologist by mailing it to the Division of Fish and Wildlife, 402 W. Washington St, Room W264, Indianapolis, IN 46204-2641

(14) do not conduct any ground disturbance within the floodway between November 1 and April 30 of any year in order to avoid potential impacts to the State Endangered Smooth Green Snake

(15) all exposed soil areas must be stabilized with temporary or permanent vegetation by November 1; between November 1 and April 1 all exposed soils idle for longer than 7 days must be stabilized with erosion control blankets or with a bonded fiber matrix hydro-mulch; sites must be protected from seasonal flooding by keeping traffic areas covered with stone and soil stockpiles seeded, stable and contained with silt fencing

(16) at least one week prior to starting work or during the winter months when animals are underground, remove all trash, debris, vegetation, and stockpiles of riprap and broken concrete from the project area in order to prevent Smooth Green Snakes and other species from using the area

(17) upon removal of debris and at least one week before conducting other work, but not during the ground disturbance date restricted period, install a trenched-in silt fence around the entire construction area to prevent snakes from entering the project area; inspect any equipment, materials, or debris that is left overnight in the area prior to the start of work each day for the presence of reptiles and amphibians; any reptiles or amphibians that are encountered, regardless of species, should be carefully picked up and placed unharmed on the other side of the fence; contact the Environmental Biologist (Lori White, 765-472-7981, lwhite1@dnr.in.gov) within 24 hours of seeing any snakes that are completely green in color

(18) except for the material used as backfill as shown on the above referenced project plans on file at the Division of Water, place all excavated material landward of the floodway *

(19) all work must conform with the existing bank at the upstream and downstream limits of the project site

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27235

(20) do not leave felled trees, brush, or other debris in the floodway *

(21) upon completion of the project, remove all construction debris from the floodway *

(22) keep the pedestrian bridge and all culvert waterway opening(s) within the scope of this project free of debris and sediment at all times

(23) the issuance of this Certificate of Approval does not constitute approval of the three existing buildings over 400 square feet in size located on the property within the currently published floodway shown on Panel #236 of the Lake County and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012. The applicant has indicated they plan to submit an application to the Federal Emergency Management Agency (FEMA) for a Letter of Map Revision (LOMR) that would remove the three existing buildings from the floodway and/or floodplain. Failure to secure a LOMR from FEMA that removes the three existing buildings from the floodway within 2 years of the issue date of this Certificate of Approval will be deemed a violation of the Flood Control Act, IC 14-28-1, and subject to enforcement action by the Department since the three existing buildings are located within the floodway and the applicant has failed to demonstrate that the lowest floor of each of the three existing buildings has been constructed to the Flood Protection Grade as required under IC 14-28-1 and 312 IAC 10. Note: this Special Condition pertains to the three existing buildings identified as the Gift Shop, Maintenance Building, and Pilate's Court (golf cart storage) on the attached "FW-27235 / FW-27358 Special Condition Map"

(24) submit as-built plans for the permitted work to the Division of Water upon FEMA's approval of a Letter of Map Revision (LOMR) for the project site

(25) NOTE: for regulatory purposes, the floodway for West Creek is defined as that shown on PANEL #236 of the Lake County and Incoporated Areas Flood Insurance Rate Map dated January 18, 2012, until such time as a Letter of Map Revision (LOMR) is obtained from the Federal Emergency Management Agency (FEMA) which supersedes the existing information for this site

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LAKE COUNTY SURVEYOR

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 27235

Frank and Shirley Schilling
8900 Wicker Avenue
St John, IN 46373

Christopher B Burke Engineering LLC
Thomas T Burke
9575 West Higgins Road Suite 600
Rosemont, IL 60018-4920

April M and Khalid A Alangary
10730 Forrest Dale Street
Saint John, IN 46373

Lance Dabrowski
2040 Birchwood Lane
Highland, IN 46322

David R Engle
PO Box 483
Dyer, IN 46311

Duane E Fritz
2040 Birchwood Lane
Highland, IN 46322

Richard D Garza
11308 107th Place
Saint John, IN 46373

GDS Holding LLC
128 Griffith Boulevard
Griffith, IN 46319

Indiana Department of Natural Resources
Division of Law Enforcement
District 10 Headquarters
100 West Water Street
Michigan City, IN 46360

Josiph Plahtaric Family Trust
6611 Alexander Avenue
Hammond, IN 46323

Robert and Corbitt Jubera
12661 Golden Road Place
St John, IN 46373

Kankakee River Basin Commission
Jody Melton
910 Dogwood Street SW
Demotte, IN 46310

Joshua M Kats
11320 107th Place
Saint John, IN 46373

Ned Kovachevich
2293 North Main Street
Crown Point, IN 46307-1854

Kristoff Family Living Trust
Amy J Kristoff
6609 West 117th Avenue
Crown Point, IN 46373

Lake County Surveyors Office
County Surveyor
2293 North Main Street
Crown Point, IN 46307-1854

Lake County SWCD
880 East 99th Court, Suite A
Crown Point, IN 46307

Lake County Trust Company
PO Box 677
Saint John, IN 46373

Marco Lona
9435 Greenwood Avenue
Munster, IN 46321

M&M Development
P.O. Box 125
St John, IN 46373

Marian Wayside Shrine Foundation
10630 Wicker Avenue
St John, IN 46373

Peoples Bank Trust # 10414
PO Box 677
Saint John, IN 46373

Richard L and Linda S Pitcher
10617 Wicker Avenue
St John, IN 46373

Saint John Sanitary District
10955 North 93rd Avenue
Saint John, IN 46373

Terry J and Amy M Schotke
10639 Wicker Avenue
Saint John, IN 46373

John A Semko
11320 107th Place
Saint John, IN 46373

Raymond and Jennifer Shaw
11314 107th Place
St John, IN 46373

Town of Saint John
Steve Kil
10955 North 93rd Avenue
Saint John, IN 46373

US Army Corps of Engineers
Chicago District
111 North Canal Street, Suite 600
Chicago, IL 60606

Raymond J Wachter
10573 Oakridge Court
Saint John, IN 46373

Weston Ridge Cottage Homes POA Inc
P O Box 326
St John, IN 46373

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 27235

Staff Assignment:

Administrative	: Scott H Dean
Technical	: Scott H Dean
Environmental	: J. Matthew Buffington
Fish and Wildlife	: Lori White
Engineering	: Tamika Ali-Yerima

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8-17-16

DNR Indiana Department of Natural Resources

Michael R. Pence, Governor
Cameron F. Clark, Director
Division of Water
402 W. Washington Street
Room W264
Indianapolis, IN 46204
Phone (317) 232-4160
Toll-free (877) 928-3755
Fax (317) 233-4579
www.in.gov/dnr/water

July 21, 2016

MAILED
JUL 27 2016

Christopher B. Burke Engineering, LLC
Donald C. Oliphant, PE, CFM, CPESC
One Professional Center, Suite 314
Crown Point, IN 46307

Re: CTS-4247 and FW-27358
West Creek Tributary WJ, Lake County

Dear Mr. Oliphant:

This is in response to your request received at the Division of Water on July 1, 2016 for the renewal of a Certificate of Approval, FW-27358 (copy attached) which was issued on July 31, 2014.

In your request you provided verification that the permittee and the project plans approved under FW-27358 have not changed. Therefore, in accordance with IC 14-28-1-22(h) the Department is granting a one-time two (2) year renewal of permit number FW-27358.

Please note that if the work authorized by this permit and its renewal, is not completed by July 31, 2018, your permit will expire and a new permit will have to be obtained.

This letter should be attached to the existing permit and displayed at the project site. The Division of Water will place a copy in the permit file to be retained as a permanent part of the application. Please be aware that all conditions of the permit must be met for your project to be in compliance.

If there are any further questions concerning this project, please contact the Technical Services Section, Division of Water at (317) 232-4160 or at sdean@dnr.in.gov.

Sincerely,

James J. Hebenstreit, PE
Assistant Director
Division of Water

JJH/shd

Enclosure: Copy of Certificate of Approval, FW-27358
Notice of Right to Administrative Appeal

pc: Service List for FW-27358

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

File No. CTS-4247

The letter or any of the conditions, limitations, and amendments which it contains may be appealed by applying for administrative review. Such review is governed by the Administrative Orders and Procedures Act, IC 4-21.5, and the Department's rules pertaining to adjudicative proceedings, 312 IAC 3-1.

In order to obtain a review, a written petition must be filed with the Division of Hearings within 18 days of the mailing date of this notice. The petition should be addressed to:

Division of Hearings
Indiana Government Center North, Room N501A
100 North Senate Avenue
Indianapolis, IN 46204

The petition must contain specific reasons for the appeal and indicate the portion or portions of the letter to which the appeal pertains.

If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel.

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL, AFTER-THE-FACT CONSTRUCTION IN A FLOODWAY

APPLICATION # : FW-27358 **MAILED: August 01, 2014**

STREAM : West Creek Tributary WJ

APPLICANT : Frank and Shirley Schilling
8900 Wicker Avenue
St John, IN 46373

AGENT : Christopher B Burke Engineering LLC
Donald C Oliphant, PE, CFM
One Professional Center Suite 314
Crown Point, IN 46307-1883

AUTHORITY : IC 14-28-1 with 312 IAC 10

DESCRIPTION : Fill has been placed along the top of the north bank of the West Creek Tributary WJ to create an earthen berm associated with the construction of a Prayer Path (pedestrian trail). The earthen berm is approximately 1,500' long and varies in height from 6' to 10' above existing elevations. The existing Prayer Path is approximately 1,500' in length. Additional project features include: construction of approximately 1,200' of a proposed Return Prayer Path north of the existing path; and installation of two sets of 4-barrel box culverts (each barrel has an effective opening of 10' x 2.25') to convey floodwaters through the earthen berm / Prayer Path, a boardwalk will span each set of culverts to maintain Prayer Path access. Details of the project are contained in information and plans received at the Division of Water on August 2, 2013, October 1, 2013, November 1, 2013, November 12, 2013, March 3, 2014, May 16, 2014, June 5, 2014 and June 24, 2014.

LOCATION : Along the north bank of West Creek Tributary WJ beginning at the confluence with West Creek and extending upstream approximately 1,500' to the west side of Wicker Avenue (US 41) near St. John, Hanover Township, Lake County
Section 5, T 34N, R 9W, St. John Quadrangle
UTM Coordinates: Downstream 4586081 North, 460687 East

APPROVED BY : George C. Bowman
George C. Bowman, PE, Assistant Director
Division of Water

APPROVED ON : July 31, 2014

Included: Notice Of Right To Administrative Review - General Conditions - Special Conditions - Service List

Attachments: 07312014_FW-27235_FW-27358_Special Condition Map.jpg

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

NOTICE OF RIGHT TO ADMINISTRATIVE REVIEW

APPLICATION #: FW- 27358

This signed document constitutes the issuance of a permit by the Department of Natural Resources, subject to the conditions and limitations stated on the pages entitled "General Conditions" and "Special Conditions".

The permit or any of the conditions or limitations which it contains may be appealed by applying for administrative review. Such review is governed by the Administrative Orders and Procedures Act, IC 4-21.5, and the Department's rules pertaining to adjudicative proceedings, 312 IAC 3-1.

In order to obtain a review, a written petition must be filed with the Division of Hearings within 18 days of the mailing date of this notice. The petition should be addressed to:

Mr. Stephen L. Lucas, Director
Division of Hearings
Indiana Government Center North, Room N501A
100 North Senate Avenue
Indianapolis, Indiana 46204

The petition must contain specific reasons for the appeal and indicate the portion or portions of the permit to which the appeal pertains.

If an appeal is filed, the final agency determination will be made by the Natural Resources Commission following a legal proceeding conducted before an Administrative Law Judge. The Department of Natural Resources will be represented by legal counsel.

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

GENERAL CONDITIONS

APPLICATION #: FW- 27358

(1) If any archaeological artifacts or human remains are uncovered during construction, federal law and regulations (16 USC 470, et seq.; 36 CFR 800.11, et al) and State Law (IC 14-21-1) require that work must stop and that the discovery must be reported to the Division of Historic Preservation and Archaeology within 2 business days.

Division of Historic Preservation and Archaeology
Room W274
402 West Washington Street
Indianapolis, IN 46204

Telephone: (317) 232-1646, FAX: (317) 232-8036

(2) This permit must be posted and maintained at the project site until the project is completed.

(3) This permit does not relieve the permittee of the responsibility for obtaining additional permits, approvals, easements, etc. as required by other federal, state, or local regulatory agencies. These agencies include, but are not limited to:

Agency	Telephone Number
Kankakee River Basin Commission	
Lake County Surveyors Office	(219) 755-3755
US Army Corps of Engineers	(312) 846-5539
Indiana Department of Environmental Management	(317) 233-8488 or (800) 451-6027
Local city or county planning or zoning commission	

(4) This permit must not be construed as a waiver of any local ordinance or other state or federal law.

(5) This permit does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

(6) This permit may be revoked by the Department of Natural Resources for violation of any condition, limitation or applicable statute or rule.

(7) This permit shall not be assignable or transferable without the prior written approval of the Department of Natural Resources. To initiate a transfer contact:

Mr. Michael W. Neyer, PE, Director
Division of Water
Room W264
402 West Washington Street
Indianapolis, IN 46204

Telephone: (317) 232-4160, Toll Free: (877) 928-3755
FAX: (317) 233-4579

(8) The Department of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the authorized work.

(9) The receipt and acceptance of this permit by the applicant or authorized agent shall be considered as acceptance of the conditions and limitations stated on the pages entitled "General Conditions" and "Special Conditions".

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LAKE COUNTY SURVEYOR

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27358

PERMIT VALIDITY : This permit is valid for 24 months from the "Approved On" date shown on the first page. If construction work in the floodway has not been completed by July 31, 2016 the permit will become void. This permit may be renewed one (1) time for a period not to exceed two (2) additional years only if a written request for the two (2) year permit renewal is received by DNR, Division of Water prior to July 31, 2016. Thereafter the permit will become void and a new permit will be required in order to continue work on the project.

This permit becomes effective 18 days after the "MAILED" date shown on the first page. If both a petition for review and a petition for a stay of effectiveness are filed before this permit becomes effective, any part of the permit that is within the scope of the petition for stay is stayed for an additional 15 days.

CONFORMANCE : Other than those measures necessary to satisfy the "General Conditions" and "Special Conditions", the project must conform to the information received by the Department of Natural Resources on: August 2, 2013, October 1, 2013, November 1, 2013, November 12, 2013, March 3, 2014, May 16, 2014, June 5, 2014 and June 24, 2014. Any deviation from the information must receive the prior written approval of the Department.

Number	Special Condition
(1)	revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion
(2)	minimize and contain within the project limits all tree and brush clearing
(3)	do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30
(4)	all excavated material must be properly spread or completely removed from the project site such that erosion and off-site sedimentation of the material is prevented
(5)	appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized
(6)	seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with erosion control blankets (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas
(7)	plant five trees, at least 2 inches in diameter-at-breast height, for each tree which is removed that is ten inches or greater in diameter-at-breast height
(8)	do not conduct any ground disturbance within the floodway between November 1 and April 30 in order to avoid potential impacts to the State Endangered Smooth Green Snake
(9)	at least one week prior to starting work or during the winter months when animals are underground, remove all trash, debris, vegetation, and stockpiles of riprap and broken concrete from the project area in order to prevent Smooth Green Snakes and other species from using the area

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27358

(10) upon removal of debris and at least one week before conducting other work, but not during the ground disturbance date restricted period, install a trenched-in silt fence around the entire construction area to prevent snakes from entering the project area

(11) inspect all equipment, materials, and debris that is left overnight in the area prior to the start of work each day for the presence of reptiles and amphibians; any reptiles or amphibians that are encountered within the construction area, regardless of species, should be carefully picked up and placed unharmed on the other side of the fence; contact the Environmental Biologist (Lori White, 765-472-7981, lwhite1@dnr.in.gov) within 24 hours of seeing any snakes that are completely green in color

(12) all exposed soil areas must be stabilized with temporary or permanent vegetation by November 1; between November 1 and April 1 all exposed soils idle for longer than 7 days must be stabilized with erosion control blankets or with a bonded fiber matrix hydro-mulch; sites must be protected from seasonal flooding by keeping traffic areas covered with stone and soil stockpiles seeded, stable and contained with silt fencing

(13) except for the material used as backfill as shown on the above referenced project plans on file at the Division of Water, place all excavated material landward of the floodway *

(14) all work must conform with the existing bank at the upstream and downstream limits of the project site

(15) do not leave felled trees, brush, or other debris in the floodway *

(16) upon completion of the project, remove all construction debris from the floodway *

(17) keep the pedestrian bridge and all culvert waterway opening(s) within the scope of this project free of debris and sediment at all times

(18) the issuance of this Certificate of Approval does not constitute approval of the three existing buildings over 400 square feet in size located on the property within the currently published floodway shown on Panel #236 of the Lake County and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012. The applicant has indicated they plan to submit an application to the Federal Emergency Management Agency (FEMA) for a Letter of Map Revision (LOMR) that would remove the three existing buildings from the floodway and/or floodplain. Failure to secure a LOMR from FEMA that removes the three existing buildings from the floodway within 2 years of the issue date of this Certificate of Approval will be deemed a violation of the Flood Control Act, IC 14-28-1, and subject to enforcement action by the Department since the three existing buildings are located within the floodway and the applicant has failed to demonstrate that the lowest floor of each of the three existing buildings has been constructed to the Flood Protection Grade as required under IC 14-28-1 and 312 IAC 10. Note: this Special Condition pertains to the three existing buildings identified as the Gift Shop, Maintenance Building, and Pilate's Court (golf cart storage) on the attached "FW-27235 / FW-27358 Special Condition Map"

(19) submit as-built plans for the permitted work to the Division of Water upon FEMA's approval of a Letter of Map Revision (LOMR) for the project site

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STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SPECIAL CONDITIONS

APPLICATION #: FW- 27358

(20) NOTE: for regulatory purposes, the floodway for West Creek Tributary WJ is defined as that shown on PANEL #236 of the Lake County and Incorporated Areas Flood Insurance Rate Map dated January 18, 2012, until such time as a Letter of Map Revision (LOMR) is obtained from the Federal Emergency Management Agency (FEMA) which supersedes the existing information for this site

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 27358

Frank and Shirley Schilling
8900 Wicker Avenue
St John, IN 46373

Christopher B Burke Engineering LLC
Donald C Oliphant, PE, CFM
One Professional Center Suite 314
Crown Point, IN 46307-1883

April M and Khalid A Alangary
10730 Forrest Dale Street
Saint John, IN 46373

Lance Dabrowski
2040 Birchwood Lane
Highland, IN 46322

David R Engle
PO Box 483
Dyer, IN 46311

Duane E Fritz
2040 Birchwood Lane
Highland, IN 46322

Richard D Garza
11308 107th Place
Saint John, IN 46373

GDS Holding LLC
128 Griffith Boulevard
Griffith, IN 46319

Indiana Department of Natural Resources
Division of Law Enforcement
District 10 Headquarters
100 West Water Street
Michigan City, IN 46360

Joslph Plahtaric Family Trust
6611 Alexander Avenue
Hammond, IN 46323

Robert and Corbitt Jubera
12661 Golden Road Place
St John, IN 46373

Kankakee River Basin Commission
6100 Southport Road
Portage, IN 46368-6409

Joshua M Kats
11320 107th Place
Saint John, IN 46373

Kristoff Family Living Trust
Amy J Kristoff
6609 West 117th Avenue
Crown Point, IN 46373

Lake County Plan Commission
Ned Kovachevich
2293 North Main Street, Suite A305
Crown Point, IN 46307-1854

Lake County Surveyors Office
County Surveyor
2293 North Main Street
Crown Point, IN 46307-1854

Lake County SWCD
880 East 99th Court, Suite A
Crown Point, IN 46307

Lake County Trust Company
PO Box 677
Saint John, IN 46373

Marco Lona
9435 Greenwood Avenue
Munster, IN 46321

M&M Development
P.O. Box 125
St John, IN 46373

Marian Wayside Shrine Foundation
10630 Wicker Avenue
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Saint John Sanitary District
10955 North 93rd Avenue
Saint John, IN 46373

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10639 Wicker Avenue
Saint John, IN 46373

John A Semko
11320 107th Place
Saint John, IN 46373

Raymond and Jennifer Shaw
11314 107th Place
St John, IN 46373

Town of Saint John
Steve Kil
10955 North 93rd Avenue
Saint John, IN 46373

US Army Corps of Engineers
Chicago District
111 North Canal Street, Suite 600
Chicago, IL 60606

Raymond J Wachter
10573 Oakridge Court
Saint John, IN 46373

Weston Ridge Cottage Homes POA Inc
P O Box 326
St John, IN 46373

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: FW- 27358

Staff Assignment:

Administrative	: Scott H Dean
Technical	: Scott H Dean
Environmental	: J. Matthew Buffington
Fish and Wildlife	: Lori White
Engineering	: Tamika Ali-Yerima

5-C-3
8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 12, 2016

Nick Bellar
Zoning & Planning Administrator
Town of Winfield
10645 Randolph Street
Winfield, Indiana 46307

RE: PC 2016-02 Providence at Stonegate Phase 1
PC 2016-03 Lake Real Estate – Rezone
PC 2016-01 Lake Real Estate – Development Plan

Dear Mr. Bellar,

According to records in the Office of the Lake County Surveyor, there is not a regulated drain located within the boundary of the proposed developments. Therefore, the Lake County Surveyor/Lake County Drainage Board has no objections or comments to the proposed developments.

The Lake County Surveyor's Office appreciates the request concerning this matter. Should you have any further questions, please do not hesitate to contact our office.

Sincerely,

Daniel V. Gossman

Daniel V. Gossman
Drainage Administrator

cc: Bill Emerson, Jr., Lake County Surveyor
Tom Regalado, Asst Drainage Admn

TECHNICAL ADVISORY COMMITTEE
AGENDA FOR AUGUST 19, 2016 @ 9:00AM

10645 Randolph Street
Winfield, IN 46307

Phone: (219) 662-2665
Fax: (219) 663-2431
www.winfield.in.gov

1. **Docket PC 2016-02 – Providence at Stonegate Phase 1**
   Owner: Stonegate Development of Winfield, LLC
   Petitioner: Stonegate Development of Winfield, LLC
   Vicinity: Vicinity of Randolph St. and 120th Avenue
   Request: Secondary Plat Approval of 34 lots.

2. **Docket PC 2016-03 - Amended Final Detail Plan - Rezone**
   Owner: Lake Real Estate Management Company, LLC
   Petitioner: Lake Real Estate Management Company, LLC
   Vicinity: 7734 E. 109th Avenue
   Request: Amendment to the Final Detail Plan

3. **Docket PC 2016-01 - Commercial Development Plan**
   Owner: Lake Real Estate Management Company, LLC
   Petitioner: Lake Real Estate Management Company, LLC
   Vicinity: 7734 E. 109th Avenue
   Request: Commercial Development Plan for a Taco Bell fast food, drive-thru restaurant

Posted: 8/11/16 2:00 PM

5-D-1
8-17-16

Christopher B. Burke Engineering, LLC

One Professional Center Suite 314 Crown Point, IN 46307 219.663.3410 cbbel-in.com

August 11, 2016

Lake County Surveyor's Office
Lake County Government Center
2293 North Main Street
Crown Point, Indiana 46307

Attention: Bill Emerson Jr., Lake County Surveyor

Subject: Hart Ditch – US 30 to State Line
Invoice Review #3
(CBBEL Project No. 930169)

Dear Mr. Emerson:

As requested, Christopher B. Burke Engineering, LLC staff (CBBEL) reviewed Invoice #153107 dated August 10, 2016, from KDM Services, LLC (KDM) for the Hart Ditch–US 30 to State Line Project. CBBEL inspected the work completed by KDM on August 10, 2016. The work completion observations correspond with the Pay Items and Project Stationing identified in KDM's Invoice. CBBEL offers the following information on areas identified where improvements have occurred and have been field verified:

Item: Channel Bank Excavation
Work completed for this Invoice:

Sta. 19+03 to 19+71 =	94.07 CY	
Sta. 19+86 to 21+23 =	191.30 CY	
	285.37 CY	Total this Invoice
Unit Cost @ $10/CY x 285.37 CYS =	**$2,853.70**	

***Note:** For the work associated along the north bank of the ditch from (from Sta. 19+46 to 21+23), the as-built linear distance parallel to ditch was measured to be 7 feet shorter than the design specifications. However, the as-built dimension of the work perpendicular to the ditch and up the bank was measured to be approximately 1.5 feet greater than the specifications and, overall, the design quantities for Channel Bank Excavation, Filter Fabric and Rip Rap along north bank of the ditch match the as-built quantities.

Item: Filter Fabric
Work completed for this Invoice:

Sta. 19+03 to 19+71 =	346.65 SY	
Sta. 19+86 to 21+23 =	1,180.11 SY	
	1,526.76 SY	Total this Invoice
Unit Cost @ $3/SY x 1,526.76 SYS =	**$4,580.28**	

Item: Rip Rap
Work completed for this Invoice:

Sta. 19+03 to 19+71 =	181.5 TONS	
Sta. 19+86 to 21+23 =	341.8 TONS	
	523.3 TONS	Total this Invoice
Unit Cost @ $58/TON x 523.3 TONS =	**$30,351.40**	

Item: Mulched Seeding
Work completed for this Invoice:
Unit Cost @ $2,272.73 AC x 0.60 AC20 TONS = **$1,363.64**

Item: Erosion Control Blanket
The detailed specification work line items did not include the installation of erosion control blanket adjacent to Channel Bank Excavation work areas. In order to perform the Channel Bank Excavation, the heavy equipment utilized along the top of the bank for this work disturbed the soil to the extent that the placement of Erosion Control Blanket along the top of the bank was warranted. During the site inspection conducted on August 10, 2016, the installed quantities of erosion control blanket were measured and CBBEL recommends payment for erosion control blanket as follows:
Work completed for this Invoice:

Sta. 19+46 to 21+23 =	600 SY	
Sta. 19+03 to 19+71 & Sta. 22+17 to 25+98 =	500 SY	
	1,100 SY	Total this Invoice
Unit Cost @ $5/SY x 1,100 SY =	**$5,500.00**	

Summary of Pay Items for this Invoice:

Channel Bank Excavation:	$2,853.70
Filter Fabric:	$4,580.28
Rip Rap:	$30,351.40
Mulched Seeding:	$1,363.64
Erosion Control Blanket:	$5,500.00
Value of Work Completed This Invoice:	$44,649.02

CBBEL's recommendation for payment:

Total Improvements:	**This Invoice**	**To Date**
Value of Work Completed:	$ 44,649.02	$ 167,776.20
Less Retainage (15%):	$ (6,697.35)	$ (20,635.10)
Balance:	$ 37,951.67	$ 147,141.20
Less Previous Payments:	n/a	$ (109,190.00)
Subtotal:	$ 37,951.67	$ 37,951.67
Amount Due This Payment:	**$ 37,951.67**	**$ 37,951.67**

With a contract value of $174,888.00 the value of completed work to date of $167,776.20 represents an overall project completion status of 96% complete. If you have any questions, please do not hesitate to call.

Sincerely,

Alan J. Walus, Senior Project Manager

Attached: KDM Services, LLC Invoice #153107 dated August 10, 2016

cc: Daniel V. Gossman, Lake County Surveyor's Office
Thomas T. Burke, Jr., CBBEL

L93016902015-PH59 Hart Ditch US 30 to State Line Invoice Review 3 081116

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AUG 10 2016
LAKE COUNTY SURVEYOR

INVOICE

11703 West 173rd Avenue
Lowell, IN 46356
Phone: (219) 690-1234
Fax: (219) 690-1234

Date	Order No.
08/10/2016	153107

Bill To:
Lake County Surveyor's Office
2293 N Main
Crown Point, IN 46307

Hart Ditch Project

Description	Quantity	Unit Price	Total
Channel Bank Excavation		$10.00/CY	
STA 19+03 to 19+71 (68 LFT)	94.07 CY		$940.70
STA 19+86 to 21+23 (137 LFT)	191.30 CY		$1,913.00
Filter Fabric		$3.00/ SY	
STA 19+03 to 19+71 (68 LFT)	346.65 SY		$1,039.95
STA 19+86 to 21+23 (137 LFT)	1,180.11 SY		$3,540.33
Rip Rap		$58.00/TON	
STA 19+03 to 19+71 (68 LFT)	181.50 TON		$10,527.00
STA 19+86 to 21+23 (137 LFT)	341.80 TON		$19,824.40
Mulched Seeding	.60 AC	$2,272.73/AC	$1,363.64
Erosion Blanket Spoil Piles		$5.00/ SY	
Hospital side	600 SY		$3,000.00
South side	500 SY		$2,500.00

Notes:
Thank you for your business!

Subtotal	$44,649.02
Less 15% Retainage	($6,697.35)
Grand Total	**$37,951.67**

5-C-4
8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 12, 2016

Bill Emerson, Jr
Lake County Surveyor
2293 North Main Street
Crown Point, Indiana 46307

RE: Monthly Report on Clearing and Snagging Crew
Kankakee River Watershed

Dear Mr. Emerson,

Following are the sites addressed by the crew since mid-July
.

July 8th – August 12th

Red Wing Lake	Removed Beaver Dam and Cleared Easement
Cedar Creek	Removed Beaver Dam
Cedar Creek	Removed Fallen Trees
Spring Run Ditch	Cleared Easement

In addition, crew maintained/cleared easements along West Creek, removed beaver dams and fallen trees at Stony Run, also maintained/ inspected various culvert crossings countywide.

Respectfully,

Thomas Regalado

Thomas Regalado
Assistant Drainage Administrator

Cc: Daniel V. Gossman, Drainage Administrator
Lake County Drainage Board and Advisory Committee

Red Wing Lake
Lowell

Cedar Creek Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug092016

Red Wing Lake
Lowell

Cedar Creek Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug092016

Cedar Creek
South of Rte. 2

Cedar Creek Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug102016

Cedar Creek
South of Rte. 2

Cedar Creek Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug102016

Cedar Creek
South of 171st

Cedar Creek Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug102016

Cedar Creek
South of 171st

Cedar Creek Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug102016

Spring Run Ditch
Belshaw Road

Cedar Creek Twp.

Before

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug112016

Spring Run Ditch
Belshaw Road

Cedar Creek Twp.

After

Prepared by the Lake County Surveyor's Office
Bill Emerson, Jr Lake County Surveyor

File: Aug112016

5-D-5
8-17-16

Christopher B. Burke Engineering, LLC

115 W. Washington St. Suite 1368 South Indianapolis, IN 46204 317.266.8000 cbbel-in.com

August 2, 2016

Indiana Department of Environmental Management
Section 401 WQC Program
100 North Senate Avenue, Room 1255
Indianapolis, IN 46204

Attention: Marty Maupin, Northwest Project Manager

Subject: Application for Regional General Permit No. 1 for Main Beaver Dam Ditch Bank Stabilization Project
Lake County, Indiana **(CBBEL Project No. 93-0169.02015)**

Dear Mr. Maupin:

On behalf of the Lake County Surveyor's Office, Christopher B. Burke Engineering, LLC (CBBEL) is submitting this application for Regional General Permit No. 1, requesting approval to proceed with the proposed project. The project site is located along Main Beaver Dam Ditch, at 1423 Edgewater Road in Crown Point, Indiana. Specifically, the project is located in Section 33, Township 35 North, Range 8 West, on the Crown Point 7.5 Minute Quadrangle Map.

The Lake County Surveyor's Office proposes removal of brush, trees, stumps, and other debris that have fallen into the ditch and on the slopes to be dressed with riprap and fabric wraps on the south side of the bank. All work will be within the 75-foot easement of Main Beaver Dam Ditch. Additionally, regrading and backfilling eroded slopes is proposed with riprap being installed from station 0+00 to 1+29. The Lake County Surveyor's Office will use an approved method to dispose of removed material.

The above mentioned erosion repairs, will result in a 129 linear feet of streambank impact and 193.5 square feet (0.004 acre) of fill below the Ordinary High Water Mark (OHWM) of Main Beaver Dam Ditch.

- Application Form for Regional General Permit – State Form 51937
- July 28, 2016 ETR Letter from IDNR, Division of Natural Preserves
- July 22, 2016 SEA #900 Inspection Report
- Site Photographs

- 8 ½ by 11 size Project Specification and Plan Sheets

We request authorization to proceed with the proposed project under Regional General Permit No. 1. Should you require additional information, please contact me at (317) 266-8000 or e-mail at jcook@cbbel-in.com.

Sincerely,

Jamie Cook

Jamie Cook
Environmental Resource Specialist

cc: Dan Gossman: Lake County Surveyor's Office
Mark Kaiser: CBBEL Indy

JMC/SEW/jc

Christopher B. Burke Engineering, LLC

115 W. Washington St. Suite 1368 South Indianapolis, IN 46204 317.266.8000 cbbel-in.com

August 2, 2016

United States Army Corps of Engineers
Chicago District, Regulatory Branch
231 South LaSalle Street, Suite 1500
Chicago, IL 60604

Attention: Paul Leffler, Senior Project Manager

Subject: Application for Regional General Permit No. 1 for Main Beaver Dam Ditch Bank Stabilization Project
Lake County, Indiana **(CBBEL Project No. 93-0169.02015)**

Dear Mr. Leffler:

On behalf of the Lake County Surveyor's Office, Christopher B. Burke Engineering, LLC (CBBEL) is submitting this application for Regional General Permit No. 1, requesting approval to proceed with the proposed project. The project site is located along Main Beaver Dam Ditch, at 1423 Edgewater Road in Crown Point, Indiana. Specifically, the project is located in Section 33, Township 35 North, Range 8 West, on the Crown Point 7.5 Minute Quadrangle Map.

The Lake County Surveyor's Office proposes removal of brush, trees, stumps, and other debris that have fallen into the ditch and on the slopes to be dressed with riprap and fabric wraps on the south side of the bank. All work will be within the 75-foot easement of Main Beaver Dam Ditch. Additionally, regrading and backfilling eroded slopes is proposed with riprap being installed from station 0+00 to 1+29. The Lake County Surveyor's Office will use an approved method to dispose of removed material.

The above mentioned erosion repairs, will result in a 129 linear feet of streambank impact and 193.5 square feet (0.004 acre) of fill below the Ordinary High Water Mark (OHWM) of Main Beaver Dam Ditch.

- Application Form for Regional General Permit – Eng 4345
- July 28, 2016 ETR Letter from IDNR, Division of Natural Preserves
- July 22, 2016 SEA #900 Inspection Report
- Site Photographs

- 8 ½ by 11 size Project Specification and Plan Sheets

We request authorization to proceed with the proposed project under Regional General Permit No. 1. Should you require additional information, please contact me at (317) 266-8000 or e-mail at jcook@cbbel-in.com.

Sincerely,

Jamie Cook

Jamie Cook
Environmental Resource Specialist

cc: Dan Gossman: Lake County Surveyor's Office
Mark Kaiser: CBBEL Indy

JMC/SEW/jc

Christopher B. Burke Engineering, LLC

115 W. Washington St. Suite 1368 South Indianapolis, IN 46204 317.266.8000 cbbel-in.com

August 2, 2016

Indiana Department of Natural Resources
Division of Water
402 West Washington Street, Room W264
Indianapolis, IN 46204-2748

Attention: Erin Basinger

Subject: **Main Beaver Dam Ditch Bank Stabilization**
Application No. FW-28513
CBBEL Project No. 93-0169.02015

Dear Ms. Basinger:

Please consider this letter and attachments as support information for a Construction in a Floodway Permit application that was submitted electronically to your office on July 19, 2016. The project site is located along Main Beaver Dam Ditch, at 1423 Edgewater Road in Crown Point, Indiana. Specifically, the project is located in Section 33, Township 35 North, Range 8 West, on the Crown Point 7.5 Minute Quadrangle Map.

The Lake County Surveyor's Office proposes removal of brush, trees, stumps, and other debris that have fallen into the ditch, and the slopes to be dressed with riprap and fabric wraps on the south side of the bank. All work will be within the 75-foot easement of Main Beaver Dam Ditch. Additionally, regrading and backfilling eroded slopes is proposed with riprap being installed from station 0+00 to 1+29. The Lake County Surveyor's Office will use an approved method to dispose of removed material. The above mentioned erosion repairs, will result in a 129 linear feet of streambank impact and 193.5 square feet (0.004 acre) of fill below the Ordinary High Water Mark (OHWM) of Main Beaver Dam Ditch.

An SEA 368 Desk Review was held for this project in July, 2016.

The following information is provided to assist in your review:

- Signed Statement of Affirmation
- Names and Addresses of Adjacent Property Owners
- July 22, 2016 SEA #900 Inspection Report
- Site Photographs

- 8 ½ by 11 size Project Specification and Plan Sheets

Proof of public notice, including N4 Forms will be provided upon receipt. If additional information is needed regarding this project or if your staff has any questions, please feel free to contact me at (317) 266-8000 or at jcook@cbbel-in.com. Thank you for your assistance.

Sincerely,

Jamie Cook

Jamie Cook
Environmental Resource Specialist

cc: Dan Gossman: Lake County Surveyor's Office
Mark Kaiser: CBBEL Indy

JMC/SEW/jc

SEA 368 INSPECTION REPORT

State Form 51594 (2-04)

Indiana Department of Natural Resources,
Division of Water
402 West Washington Street, Room W264
Indianapolis, IN 46204
ph. (317) 232-4160 or toll free 1-877-928-3755
Fax (317) 233-4579

SEA # 900 DATE DESK REVIEW

PROJECT INFORMATION

STREAM/LAKE Main Beaver Dam Ditch

LOCATION Beginning approx 1,650' upstream from Center Ross Road (West 101st Ave) working upstream and ending at a point 129' upstream. ~~[illegible]~~

DOWNSTREAM

Section 33 NW / NE / SW / SE; Township 35 (N) / S; Range 8 E / (W)

Quadrangle Crown Point UTM 4587285 N 471268 E

City/Town Crown Point Civil Township Ross County Lake

UPSTREAM

Section 33 NW / NE / SW / SE; Township 35 (N) / S; Range 8 E / (W)

Quadrangle Crown Point UTM 4587269 N 471240 E

City/Town Crown Point Civil Township Ross County Lake

DESCRIPTION:

One sided construction: ☐ Yes ☐ No Vegetated buffer strip: ☐ Yes ☐ No, If "yes", strip width ____ feet

Project proposes removal of brush, trees, stumps, and other debris that has fallen into the ditch and on the slopes to be dressed with riprap and fabric wraps on the south side of the bank. Removed material will be disposed of by approved method by the Lake County Surveyor's Office. All work will be within 75' easement. Additionally regrading and backfilling eroded slopes is proposed w/ riprap being installed from Station 0+00 to Station 1+29 (129').

ATTENDEES

		phone		fax
Water	Nicole Solitro	(317) 234-1043	( )	
Fish & Wildlife	Erin Basiger	(317) 234-0586	( )	
Soil Conservation		( )	( )	
IDEM	Mandy Mauzy (Dept Phone)	(317) 233-2471	( )	
County		( )	( )	
SWCD		( )	( )	
USF&WS		( )	( )	
USACE		( )	( )	
Other		( )	( )	

FINDINGS

IDNR-SEA 368 FIELD REVIEW CONDITIONS

The following checked-off items are the Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.

Reference	Condition
☑ ER11	Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only
☑ ER16	Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Water's Environmental Unit
☐ ER17	For salmonid streams, do not work in the waterway from March 15 through June 15 and from July 15 through November 30 without the prior written approval of the Division of Water's Environmental Unit
☑ ER19	Do not cut any trees suitable for Indiana bat, or Northern Long-eared bat roosting (greater than 3 inches in diameter, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30
☑ ER20	Do not excavate or place spoil in any riparian wetland
☑ ER31	Limit any channel widening and bank disturbance to the (least vegetated ~~north/south/east/west~~) side of the waterway
☐ ER65	Stabilize banks as work progresses so that no more than 200 lineal feet are left disturbed at the completion of the workday
☑ ER66	Revegetate all areas disturbed during debris and sediment removal. Permanent seed and fertilize disturbed ditch banks at the end of each day. Revegetate areas with one of the seeding mixtures or species listed in the VEGETATIVE STABILIZATION AND SEEDING PRACTICE of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996) or other species that are approved by the Department as being suitable to site and climate conditions. At the completion of the project, re-seed and fertilize areas that do not have sufficient vegetative cover to control erosion
☐ ER67	Protect newly seeded areas with anchored mulch at specified locations as listed under Special Conditions (page 7 of this form). Mulch materials, application rates, and anchoring methods must meet the criteria set forth in the INDIANA DRAINAGE HANDBOOK, Section 5.11 from the Division of Water, Indiana Department of Natural Resources (October 1996) or INDIANA HANDBOOK FOR EROSION CONTROL IN DEVELOPING AREAS, Sub-Section 3.1 from the Division of Soil Conservation, Indiana Department of Natural Resources (October 1992)
☑ ER70	Revegetate all spoil materials deposited in areas not used for crop production
☐ ER72	Use appropriate structural armament in channel straightening transition areas to blend with the existing channel. Use one of the appropriate structural armament practices listed in Section 5.5 of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996)
☐ ER73	Install appropriate armament below pipe outfalls
☐ ER74	Install drop structures where needed to convey runoff from adjacent areas to the channel without causing erosion
☐ ER75	Where vegetation alone is not sufficient to prevent erosion in channel bends, use one of the appropriate structural armament practices listed in Section 5.5 of the INDIANA DRAINAGE HANDBOOK from the Division of Water, Indiana Department of Natural Resources (October 1996)
☑ ER76	A representative of the Surveyor's Office or their contractor shall inspect erosion and sediment control practices daily and repair as necessary until all construction is complete and disturbed areas are permanently stabilized

IDNR-SEA 368 FIELD REVIEW CONDITIONS (continued)

The following checked-off items are the Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.

Reference	Condition
☐ ER78	Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse
☑ FW02	All work must conform with the existing bank at the upstream and downstream limits of the project site
☑ FW03	Except for trees cabled in-place for bank protection, do not leave felled trees, brush, or other debris in the floodway
☐ FW21	Align spoil piles parallel to flow; the toe of the spoil piles must be located at least 10 feet landward of the top of the streambank; and a _____-foot opening must be provided every _____-feet along the spoil piles' length
☐ FW33	The plans for the project must include information that demonstrates that the project will not result in the lowering of _____ Lake, below its: 1) legally established water level of _____ feet, NGVD 2) average normal water level of _____ feet, NGVD, as determined from USGS lake level records, or 3) average water level of _____ feet, NGVD, as determined by the action of the water that has marked upon the soil of the bed of the lake a character distinct from that of the bank with respect to vegetation as well as the nature of the soil
☐ FW34	Do not alter the average normal water level of _____ Lake; if the average normal water level of the lake is altered, it will be the responsibility of the _____ County Drainage Board to take corrective actions to restore the average normal water level of the lake and to mitigate for any damages incurred
☐ FW35	Place all excavated materials at least 10 feet landward of the top of the ditch bank; spread all excavated materials evenly to a thickness not to exceed _____ and slope landward from the channel or completely remove from the floodway
☐ NP01	Avoid adverse impacts to the following state listed species: _____
☐ OR03	This project will occur within a section of _____ that has been designated as a _____ under the Indiana Natural, Scenic, and Recreational River System (IC 14-29-6). The applicant must contact _____ at 317-232-4070 for more information regarding this permit

IDEM-SEA 368 FIELD REVIEW CONDITIONS

The following checked-off items are the Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.

Reference	Condition
☑ IDEM01	Submit an application to IDEM for Section 401 Water Quality Certification if the Corps requires an individual Section 404 permit, a Regional General Permit[1] for impacts greater than 0.1 acre, or a Nationwide Permit for which IDEM has denied Water Quality Certification. Application forms are available through the IDEM office. [1] *The activity will impact (fill) more than one-tenth (0.1) of an acre of Waters of the United States, including wetlands, special aquatic sites, creeks, ditches, streams, rivers, deep water areas, or open water areas; or the activity will impact (fill) more than 300 linear feet of stream channel or shoreline.*
☑ IDEM02	Avoid and minimize impacts (filling or mechanical clearing)[2] of jurisdictional wetlands to the greatest extent possible, and provide acceptable compensatory mitigation for all unavoidable impacts to jurisdictional wetlands greater than 0.1 acre. [2] *Mechanical clearing is the use of heavy equipment to push, pull, scrape, or excavate woody vegetation in order to remove it.*
☑ IDEM03	Field mark the area where the filling or mechanical clearing of wetlands is unavoidable.
☑ IDEM04	Use solid tile and anti-seep collars on the portion of the tile line that transects the wetland.
☑ IDEM05	Install appropriate sediment control measures to prevent the flow of sediment laden water, resulting from dredging operations, back into the watercourse.
☑ IDEM06	Limit the physical disturbance of banks, other soils, and existing vegetation to that which is necessary to achieve the purpose of the project.
☑ IDEM07	Deposit dredged material on upland, or old spoils that are considered upland.
☑ IDEM08	Revegetate all bare and disturbed areas, except for land that will be used for crop production in the next growing season, with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion. Low endophyte tall fescue may be used in the ditch bottom and side slopes only.
☐ IDEM09	Perform daily seeding of the ditch banks if the project is conducted during the agricultural growing season; seed the ditch banks as soon as possible if the project activity occurs during the dormant season.
☑ IDEM10	Conduct logjam removal and tree preservation consistent with the practices established in the *Indiana Drainage Handbook*. The handbook was prepared in accordance with State of Indiana Public Law 329-1995 to serve as an administrative and technical guide for drainage activities within Indiana streams and ditches.
☑ IDEM11	Encourage landowners affected by this project to place grassed filter strips on land immediately bordering the stream. The federal *Conservation Reserve Program* offers competitive annual payments for this practice on a continual sign-up basis. In addition, certain areas may qualify for special cost share or incentive programs for the establishment of filter strips. Contact the local county Soil and Water Conservation District or the Natural Resources Conservation Service for program and practice specific information.
☑ IDEM12	Spread dredged material, where possible, in a manner that will not impede overland flow to the stream. This will help eliminate adjacent berm buildup and associated "points of concentrated flow" that are erosive and require expensive land treatment practices.
☑ IDEM13	Work from only one side of the stream, and where possible, from the side of the stream which does not have adjacent wetlands. If no wetlands are present, work from the side with the fewest trees and woody vegetation. If both banks are equally vegetated, work only from the north or east side, whichever is appropriate.

IDEM-SEA 368 FIELD REVIEW CONDITIONS (continued)

The following checked-off items are the Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.

Reference	Condition
☑ IDEM14	Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Water's Environmental Unit.
☐ IDEM15	For salmonid streams, do not work in the waterway from March 15 through June 15 and from July 15 through November 30 without the prior written approval of the Division of Water's Environmental Unit.
☑ IDEM16	Do not cut any trees suitable for Indiana bat or Northern Long-eared bat roosting (greater than 3 inches in diameter, living or dead, with loose hanging bark or with cracks, crevices, or cavities) from April 1 through September 30
☑ IDEM17	Ensure that the contractor performing the work complies with Section 311 of the Federal Clean Water Act and with 327 IAC 2-6.1 concerning spills of oil and/or hazardous materials.

SEA 368 FIELD REVIEW SPECIAL CONDITIONS

The following checked-off items are:

☐ IDNR — *The Department of Natural Resources' comments in the form of conditions, as they would appear on a Construction in a Floodway Permit or a Ditch Reconstruction Permit for the project, or in response to the Corps of Engineers as a result of a Section 404 review.*

☐ IDEM — *The Department of Environmental Management's comments which, if a Department of the Army Section 404 permit is required, may appear as conditions on an IDEM Section 401 Water Quality Certification. These conditions may be subject to change following the receipt of a complete application.*

Agency		Reference	Condition
☑ IDNR	☐ IDEM	(SP01)-	Keep all spoils out of the floodway as defined as that shown on Panels 18089C0261E and 18089C0262E of the County of Lake Flood Insurance Rate Map dated January 18, 2012.
☐ IDNR	☐ IDEM	(SP02)-	
☐ IDNR	☐ IDEM	(SP03)-	
☐ IDNR	☐ IDEM	(SP04)-	

ATTENDEE RECOMMENDATION

Signature of Attendee	Agree with all project conditions checked	Agree with all project conditions except the following	Disagree with all project conditions checked
Nicole Solitro ☑ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Marty Mawpin ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☑ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
Erin Basiger ☐ WATER ☑ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☑		☐
David V. Hosman ☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☒ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☒		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐
☐ WATER ☐ FISH & WILDLIFE ☐ SOIL CONSERVATION ☐ IDEM ☐ COUNTY ☐ SWCD ☐ USF&WS ☐ USACE ☐ OTHER	☐		☐

ADDITIONAL COMMENTS

DISPUTED CONDITIONS

CODE	REASON

5-D-5
8-17-16

ADDENDUM #1

MAIN BEAVER DAM DITCH
1423 EDGEWATER ROAD
2016

August 4, 2016

Please revise the contract documents as follows:

I. To clarify discussions at the 8/4/16 pre-bid meeting, the Contractor is responsible for accessing the job on the northeast side of the 1423 Edgewater Road property. The Contractor should protect the pavement, curb/gutter, and sidewalk at this ingress/egress location to maintain pre-project conditions. Method(s) of protection is left to the Contractor's discretion and shall be considered incidental to the Contract. Pre-project conditions will be videotaped by Lake County Surveyors Office staff prior to a Notice to Proceed.

II. As always, it is highly recommended to review the site previous to the bid opening.

III. All bidders with additional questions related to the project documents should submit to the Engineer, not less than seven (7) days before the bid deadline, a written request for interpretation and clarification.

IV. Bids are due at 9:00am on August 17, 2016 at the Lake County Surveyors Office.

5-E-2
8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

June 21, 2016

Bill Emerson, Jr.
Lake County Surveyor
2293 North Main Street
Crown Point, Indiana 46307

RE: Singleton Ditch Maintenance – US 41 to Monon Road – Phase II
Invoice #1328 Review

Dear Bill,

I have reviewed the Invoice #1328 from R.A. Oros dated June 21, 2016 in the amount of $24,862.09 (see attached) in reference to work on the Singleton Ditch Maintenance project. An inspection with Assistant Drainage Administrator Tom Regalado was made on June 21, 2016.

After the inspection, staff confirms the invoice submitted is consistent with the work accomplished to date. Therefore, it is recommended that the contractor receive final payment for the invoiced amount.

Should you have any questions or comments, or require additional information, please do not hesitate to let me know.

Sincerely,

Daniel V. Gossman
Drainage Administrator

LAKE COUNTY DRAINAGE BOARD
Gary Schenk VD
K.B.
Kyle W. Albon Sr. D.H.
APPROVED THIS 17 DAY OF Aug 2016

Cc: Tom Regalado, Asst Drainage Admn
Chris Brown, MS4 Compliance Inspector
Cliff Duggan, Legal Advisor
Alice Dahl, Cedar Creek Township Advisory Committee Representative
Lake County Drainage Board & Advisory Committee
Emil Poppa, R.A. Oros Inc.

R. A. Oros, Inc.

Invoice

8244 Greenwood Ave.
Munster, IN 46321

Bill To:
Lake County Surveyor's Office
Attn: Dan Gossman
2293 N. Main Street
Crown Point, IN. 46307

Date	Invoice No.	P.O. Number	Terms	Project
06/21/16	1328	draw 4		Singleton Ditch Phase II

Item	Description	Quantity	Rate	Amount
Retainage	Retainage from Draw 1 (Invoice 1298)		3,326.14	3,326.14
Retainage	Retainage from Draw 2 (Invoice 1311)		10,683.75	10,683.75
Retainage	Retainage from Draw 3 (Invoice 1312)		10,852.20	10,852.20

RECEIVED
LAKE COUNTY SURVEYOR

Thank you for your business.

Total $24,862.09

"OK"

5-E-2
8-17-16

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 1, 2016

R.A. Oros, Inc.
8244 Greenwood Avenue
Munster, IN 46321

RE: Singleton Ditch – Phase I and Phase II
West Creek Twp.

Dear Mr. Poppa,

At the July 20, 2016 Lake County Drainage Board meeting, we were asked about the silt fence removal and vegetation on the Singleton Ditch Maintenance. I informed them that the establishment of vegetation has been hindered due to the type of sediment that was removed from the channel and the lack of rain that usually helps establish the vegetation quickly. I also stated that the contractor agreed at no additional cost, to sew a preferred seed mixture that was suggested by the local property owners instead of the usual INDOT specified seed mix.

It is customary that the silt fence is left in place until the vegetation has established. However, since the vegetation is not germinating as well as anticipated, I feel that the silt fence can be scheduled to be removed. Please contact our office as to when the silt fence removal will be scheduled, taking into account minimal disturbance to the adjacent farmland.

The Lake County Surveyor/Lake County Drainage Board appreciates your attention in this matter. Should you have any questions or concerns, please do not hesitate to contact our office.

Sincerely,

Daniel V. Gossman

Daniel V. Gossman
Drainage Administrator

Cc: Bill Emerson, Jr., Lake County Surveyor
Tom Regalado, Asst Drainage Admn
Lake County Drainage Board & Advisory Committee

5-E-4
8-17-16

Michael R. Pence., Governor
Cameron F. Clark, Director
Division of Water
402 W. Washington Street
Room W264
Indianapolis, IN 46204
Phone (317) 232-4160
Toll-free (877) 928-3755
Fax (317) 233-4579
www.in.gov/dnr/water/

DNR Indiana Department of Natural Resources

August 3, 2016

Bill Emerson Jr.
Lake County Surveyor
Building A, 3rd Floor
2293 N. Main Street
Crown Point, IN 46307

RE: SEA 368 Field Review Request

Dear Mr. Emerson:

Reference is made to the email received on August 2, 2016 from Dan Gossman, Lake County Surveyors Office, regarding work on the Unnamed Tributary Middle Branch, locally known as Stoney Run Ditch Middle Branch. This project is assigned to file SEA #907. The project is located in Section 31, Township 34 North, Range 7 West, Winfield Township, Lake County.

Because the total stream length is less than 10 miles, **no Construction in a Floodway Permit is required** for this project from the Indiana Department of Natural Resources (IDNR) under *IC 14-28-1*. Because the ditch work is not within one-half (½) mile of a freshwater lake 10 acres or more in size, **no Ditch Reconstruction permit is required** from the Indiana Department of Natural Resources (IDNR) under *IC 14-26-5, Lowering of the Ten Acre Lake Act*. However, you must contact the Corps to determine their jurisdiction with this project. If an individual permit under Section 404 of the Clean Water Act from the Corps of Engineers is required for the proposed work, an SEA field review will be conducted. Contact information for the Corps is:

Chicago Corps of Engineers
111 North Canal Street
Chicago, IL 60606-7206
Phone: (312) 846-5530
Fax : (312) 353-4110

Please submit a written statement from the Corps regarding their jurisdictional decision on this project (please refer to SEA #907 in your submittal). Thank you for your cooperation in this matter. If you should have any questions please contact me at (317) 234-0586.

Sincerely,

Erin Basiger

Erin Basiger
Statewide Environmental Biologist

An Equal Opportunity Employer
Printed on Recycled Paper

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 8, 2016

Marty Maupin, Northwest Project Manager
Indiana Department of Environmental Management
Section 401 WQC Program
100 North Senate Avenue, Room 1255
Indianapolis, Indiana 46204

RE: Regional General Permit Application
Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance
Leroy, (Winfield Twp.), Lake County, Indiana

Dear Mr. Maupin,

The Lake County Surveyor/Lake County Drainage Board is submitting this application for a Regional General Permit for approval to proceed with the proposed project. The project site is located along Stoney Run Ditch Middle Branch Lateral No. 4 at 5230 145th Avenue, Crown Point, Indiana. Specifically, the project is located in Section 31, Township 34 North, Range 7 West, on the Leroy 7.5 Minute Quadrangle Map.

The project involves removal of debris and sediment from the channel and placement of riprap around the outfall culvert under 145th Avenue. All work will take place within the 75 feet regulated drain easement of Stoney Run Ditch Middle Branch Lateral No. 4. No FILL will be placed within the delineated wetlands or below the OHWM. There will be wood drag line matting placed temporarily in the wetland on the west side of the ditch, for removal of material to an approved upland area. The mats will be removed once work is completed and no permanent impacts will occur.

- Application Form for Regional General Permit – State Form 51937
- August 3, 2016 Letter from IDNR, Division of Water
- 8 ½ x 11 Project Plans and Specifications

The Lake County Surveyor/Lake County Drainage Board appreciates your attention in this request, and we look forward to our continued cooperative efforts to reduce environmental impacts. Should you have any additional questions or concerns, please do not hesitate to contact our office.

Sincerely,

Daniel V. Gossman
Drainage Administrator

Cc: Bill Emerson, Jr., Lake County Surveyor
Lake County Drainage Board & Advisory Committee

SECTION 401 WQC REGIONAL GENERAL PERMIT NOTIFICATION

State Form 51937 (R4 / 5-15)
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM) and U.S. ARMY CORPS OF ENGINEERS (USACE)

Authorities: Section 401 Water Quality Certification, Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbor Act

INSTRUCTIONS:
1. *Familiarize yourself with the terms and conditions of this permit.*
2. *Read the instructions before filling out this form.*
3. *All applicable sections of this two (2) page form must be completed.*

AGENCY USE ONLY
Date Received:
IDEM ID:
Processing Date:

APPLICANT INFORMATION	
Name of Project: Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance	Designation Number:
Applicant: Lake County Surveyor's Office	Agent (Name of Company):
Contact Person: Daniel V. Gossman	Contact Person:
Address *(number and street)*: 2293 North Main Street City: Crown Point State: IN Zip Code: 46307	Address *(number and street)* : City: State: Zip Code:
Telephone Number: 219-755-3745	Telephone Number:
E-mail Address: gossmdv@lakecountyin.org	E-mail Address:

PROJECT LOCATION			
County: Lake		Nearest Town: Leroy	
Quad Name:	Section: 31	Township: 34	Range: 7
Latitude: 41.211667		Longitude: 87.161259	

Project Address and Driving Directions:
5230 145th Avenue, Crown Point, IN 46307 - From I-65 exit east on US 231 towards Leroy. Turn right onto Elkhart Street and proceed south to 145th Avenue. Turn left onto 145th Avenue and the project site is approximately 500 feet east from the intersection.

EXISTING CONDITIONS ON THE PROJECT SITE	
Lake: ☐ Yes ☑ No	Name of Lake:
Stream: ☑ Yes ☐ No	Name of Stream: Stoney Run Ditch Middle Branch Lateral No. 4 Stream Type: ☑ Perennial ☐ Intermittent ☐ Ephemeral
Wetlands ☑ Yes ☐ No	Acreage on the site by Wetland Type(s): PEM1C Emergent _____ Scrub-Shrub _____ Forested
	Date *(mm/dd/yyyy)* of Wetland Delineation: Date *(mm/dd/yyyy)* of the U.S. Army Corps of Engineers Jurisdiction Correspondence:

PROJECT IMPACTS

Activity Description:
The project involves routine ditch maintenance along an approximate 450 feet long reach along Stoney Run Ditch Middle Branch Lateral No. 4 Regulated Drain beginning on the north side of 145th Avenue in un-incorporated Leroy, Lake County, Indiana. All scheduled maintenance will take place within the 75 feet Regulated Drain Easement on Stoney Run Ditch Middle Branch Lateral No. 4. Channel bottom dipping and channel clearing and snagging will occur throughout the entire project lenght. NO FILL will be placed within the delineated wetlands or below the OHWM of the Stoney Run Ditch Middle Branch

Purpose of Project :
Routine Ditch Maintenance

For Lake Impact *(Acceptable fill is defined in the instructions)*:

(1) Linear feet of shoreline impact (Example – Seawall): _____

(2) Type of fill below the Ordinary High Water Mark: _____ Volume *(Cubic Yards)*: _____ Acres: _____

(3) Does the shoreline or open water area have vegetation present? ☐ Yes ☐ No
If Yes, are you proposing natural shoreline stabilization? ☐ Yes ☐ No Description:

(4) Open water fill beyond shoreline *(Examples – Boat Well, Underwater Beach)*: Type of Fill: _____ Acres: _____

For Stream Impact *(Acceptable fill is defined in instructions)*:

(1) Total linear feet of stream impact (Examples - bank stabilization, bridge construction or culvert placement, seawall work): 370

(2) Total acre(s) of stream impact: 0.05

(3) Type of fill below the Ordinary High Water Mark: Riprap Volume *(Cubic Yards)*: 7.5

(4) Proposed start date of work in the stream *(mm/dd/yyyy)*: 09/01/2016 Proposed end date of work in the stream *(mm/dd/yyyy)*: _____

(5) Channel width in feet (See instructions): 6 Channel depth in feet *(See instructions)*: 2

(6) Cross-sectional area below the Ordinary High Water Mark: _____

(7) For stream crossings, type of structure proposed to be Installed (Examples: three-sided or four-sided culvert, bridge, pipe): _____

(8) For stream crossings, width of culvert structure/diameter of pipe to be Installed (feet): _____ Length of culvert structure/pipe (feet): _____

(9) For stream crossings, substrate type (i.e. sand, soil or unconsolidated till, bedrock or consolidated till): _____

(10) Open water fill that projects beyond the stream bank: Type of fill: _____ Acre(s) of open water impact: _____

For Wetland Impact *(Acceptable fill is defined in instructions)*:

(1) Type of fill: All material will be hauled to an upland site - access will be by means of wood drag line matting

(2) Acre(s) of Impact: 0.10 Emergent _____ Scrub-Shrub _____ Forested

SIGNATURE OF APPLICANT – STATEMENT OF AFFIRMATION

I certify that I am familiar with the information contained in this notification form and, to the best of my knowledge and belief, such information is true and accurate. I certify that I have the authority to undertake and will undertake the activities exactly as described in this notification form. I am aware that there are penalties for submitting false information. I understand that any changes in project design subsequent to IDEM's and the USACE's granting of authorization to discharge to a water of the U.S. are not authorized, and that I may be subject to civil and criminal penalties for proceeding without proper authorization. I agree to allow representatives of IDEM and the USACE to enter and inspect the project site. I understand that the granting of other permits by local, state, or federal agencies does not release me from the requirement of obtaining the authorization requested herein before commencing the project.

Signature of Applicant: _____ Date *(mm/dd/yyyy)*: 08/05/2016

Printed Name of Applicant: Daniel V. Gossman Title: Drainage Administrator

Enclose copies of the following documents *(all enclosures must be on 8.5" by 11" paper)*. Failure to provide all applicable documents and information may result in a determination that the proposed project is out of scope.

(1) ☑ Location Map

(2) ☑ Drawings of existing site and proposed project

(3) ☐ Cross sections of proposed activities showing extent of fill waterward *(for seawall, shoreline, and stream bank stabilization impacts)*

(4) ☐ Cross sections of proposed activities showing the bankfull width or Ordinary High Water Mark of the stream

(5) ☐ At least three photos of the site, labeled

(6) ☐ Copy of wetland delineation report *(for projects with wetland impacts)*

(7) ☑ Copies of all correspondence from the USACE *(for projects with wetland impacts)*

(8) ☑ Copies of all correspondence from the Indiana Department of Natural Resources, Division of Nature Preserves *(required)*

Please Note:

(1) It is recommended that you send this form and the attachments **via certified mail.** The agencies will **not** notify you when this form is received.

(2) IDEM and the USACE will review this form and all attachments for completeness and accuracy. You will not be contacted during the application process unless deficiencies are identified at which time the agencies may require additional information to verify that the project meets all conditions of the Regional General Permit and the Section 401 Water Quality Certification (WQC). If you are not contacted by IDEM within thirty (30) days of the date IDEM receives this notification form, your project is authorized, subject to the terms and conditions of the Section 401 Water Quality Certification and its conditions. You will not receive a written confirmation of authorization from IDEM, however the USACE will issue written authorization.

(3) Read all the terms and conditions of the IDEM Regional General Permit, including all USACE and IDEM conditions. The terms and conditions of this general permit as instituted by IDEM can be found at: http://www.in.gov/idem/wetlands/2353.htm . Do not submit this notification form or commence work on the proposed project until you understand and are familiar with the limitations and restrictions of the IDEM Regional General Permit Notification Form.

(4) Consult this webpage for more information: http://www.in.gov/idem/wetlands/index.htm

Upon completion of the application, mail this form and all enclosures to:

Indiana Department of Environmental Management
Office of Water Quality, Wetlands and Storm Water Section
Section 401 WQC/Isolated Wetlands Program
100 North Senate Avenue, IGCN, Room 1255
Indianapolis, Indiana 46204-2251

U.S. Army Corps of Engineers
Regulatory Branch
For office locations serving Indiana, please visit:
http://www.usace.army.mil/Locations.aspx

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 8, 2016

Paul Leffler, Senior Project Manager
United States Army Corps of Engineers
Chicago District, Regulatory Branch
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604

RE: Regional General Permit Application
Stoney Run Ditch Middle Branch Lateral No. 4 Maintenance
Leroy, (Winfield Twp.), Lake County, Indiana

Dear Mr. Leffler,

The Lake County Surveyor/Lake County Drainage Board is submitting this application for a Regional General Permit for approval to proceed with the proposed project. The project site is located along Stoney Run Ditch Middle Branch Lateral No. 4 at 5230 145th Avenue, Crown Point, Indiana. Specifically, the project is located in Section 31, Township 34 North, Range 7 West, on the Leroy 7.5 Minute Quadrangle Map.

The project involves removal of debris and sediment from the channel and placement of riprap around the outfall culvert under 145th Avenue. All work will take place within the 75 feet regulated drain easement of Stoney Run Ditch Middle Branch Lateral No. 4. No FILL will be placed within the delineated wetlands or below the OHWM. There will be wood drag line matting placed temporarily in the wetland on the west side of the ditch, for removal of material to an approved upland area. The mats will be removed once work is completed and no permanent impacts will occur.

- Application Form for Regional General Permit – Eng Form 4345
- August 3, 2016 Letter from IDNR, Division of Water
- 8 ½ x 11 Project Plans and Specifications

The Lake County Surveyor/Lake County Drainage Board appreciates your attention in this request, and we look forward to our continued cooperative efforts to reduce environmental impacts. Should you have any additional questions or concerns, please do not hesitate to contact our office.

Sincerely,

Daniel V. Gossman
Drainage Administrator

Cc: Bill Emerson, Jr., Lake County Surveyor
Lake County Drainage Board & Advisory Committee

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME
First - Daniel Middle - V Last - Gossman
Company - Lake County Surveyor's Office
E-mail Address - gossmdv@lakecountyin.org

8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Middle - Last -
Company -
E-mail Address -

. APPLICANT'S ADDRESS:
Address- 2293 North Main Street
City - Crown Point State - IN Zip - 46307 Country - USA

9. AGENT'S ADDRESS:
Address-
City - State - Zip - Country -

7. APPLICANT'S PHONE NOs. w/AREA CODE
a. Residence b. Business 219-755-3745 c. Fax 219-755-3750

10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

_____ SIGNATURE OF APPLICANT _____ DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Stoney Run Ditch Middla Branch Lateral No. 4 Maintenance

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Stoney Run Ditch Middle Branch Lateral No. 4

14. PROJECT STREET ADDRESS (if applicable)
Address 5230 145th Avenue
City - Crown Point State- IN Zip- 46307

15. LOCATION OF PROJECT
Latitude: °N 41.211667 Longitude: °W 87.161259

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section - 31 Township - 34 Range - 7

17. DIRECTIONS TO THE SITE

From I-65 exit east on US 231 towards Leroy. Turn right onto Elkhart Street and proceed south to 145th Avenue. Turn left onto 145th Avenue and the project site is approximately 500 feet from the intersection.

18. Nature of Activity (Description of project, include all features)

The project involves routine ditch maintenance along an approximate 450 feet long reach along Stoney Run Ditch Middle Branch Lateral No. 4 Regulated Drain beginning on the north side of 145th Avenue in un-incorporated Leroy, Indiana. All scheduled maintenance will take place within the 75 feet Regulated Drain Easement on Stoney Run Ditch Middle Branch Lateral No. 4. Channel bottom dipping and channel clearing and snagging will occur throughout the entire project length. NO FILL will be placed within the delineated wetlands or below the OHWM of the Stoney Run Ditch Middle Branch Lateral No. 4 Regulated Drain.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Routine Ditch Maintenance

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

There will be wood drag-line mats placed temporarily in the wetland on the west side of the bank. The mats will be removed once work is completed and no permanent impacts will occur. (See Exhibit)

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
	2016-08-08		

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

6-A
8-17-16

Christopher B. Burke Engineering, LLC

One Professional Center Suite 314 Crown Point, IN 46307 219.663.3410 cbbel-in.com

HANDOUT

August 15, 2016

Landmark Engineering, LLC
7808 W. 103rd Street
Palos Hills, IL 60465

Attention: Brad Hensley, PE
Vice President

Subject: **Windy Knoll Estates**
Watercourse: Bull Run
Applicant: James & Janice Nichols
Engineer: Landmark Engineering, LLC
(CBBEL Project No. 93-169)

Dear Mr. Hensley:

At the request of the Lake County Surveyor's Office (LCSO), Christopher B. Burke Engineering, LLC (CBBEL) has performed a review of the material submitted for the subject project by Landmark Engineering, LLC. (Landmark). The project consists of the construction of a 3-lot residential subdivision east of Sheffield Avenue, approximately 1000 ft. north of 101st Avenue in Unincorporated Lake County, Indiana. A crossing of Bull Run is required to access the eastern lots of the subdivision. Bull Run does not contain mapped floodplain or floodway according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Lake County, Indiana and Incorporated Areas, Panels 210 of 480, dated January 18, 2012. The crossing location of Bull Run contains less than one square mile of drainage area; therefore, no permit from the Indiana Department of Natural Resources – Division of Water is required. Additionally, compensatory storage requirements were not considered since there is no mapped floodplain in the vicinity of the project. The purpose of the CBBEL review was to comment on compliance with the Lake County, Indiana Stormwater Management Ordinance (Ordinance) and standard engineering methods. It is our understanding that DLZ completed a review on behalf of the LCSO for the Lake County Plan Commission regarding stormwater quantity and quality of the development. This review will consider the crossing of Bull Run and any other encroachments within the Lake County Drainage Board 75-ft. drainage easement.

CBBEL received the following items for review:

- Transmittal Letter, prepared by Landmark, dated August 5, 2016.
- HydroCAD output and corresponding calculations/exhibits, prepared by Landmark, dated varies.
- HY-8 output and corresponding calculations/exhibits, prepared by Landmark, dated varies.
- ADS cover specifications.
- "Primary Plat for Windy Knoll Estates" Plan Set, prepared by Landmark, dated August 5, 2016.

CBBEL staff has reviewed the supplied information and concludes the Applicant has satisfactorily addressed all previous comments. We recommend approval with the following condition:

1. All disturbed areas within the 75-ft. drainage easement should be properly stabilized and restored to existing conditions. All efforts should be made to limit sediment entering the waterway during construction of the proposed crossing.

If you have any questions, please do not hesitate to call (847) 823-0500.

Sincerely,

Donald C. Oliphant, PE, CFM, CPESC
Senior Water Resources Engineer

CC: Bill Emerson, Jr. – Lake County Surveyor
Dan Gossman – LCSO
Mary Ellen Kupsik – LCSO
Thomas Burke, PE – CBBEL

DCO\
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Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

6-A

NOTICE OF ACTION
Application No. 298-6-16-I-III

July 20, 2016

Brad Hensley, PE
LANDMARK ENGINEERING, LLC
7808 West 103rd Street
Palos Hills, IL 60465

DEAR PETITIONER:

THIS NOTICE IS TO INFORM YOU THAT YOUR PETITION OR REQUEST FOR

Bull Run Ditch, St John Twp.
Applicant: James & Janice Nichols **Agent: Landmark Engineering Ltd**
Application to "Perform Work", and "Place Temporary/Permanent Structure" within regulated drain for the purpose of installing culvert crossing for development of Windy Knoll Estates.

WAS CONSIDERED BY THE DRAINAGE BOARD AT A MEETING ON THE **20h** DAY OF **July, 2016** WITH THE FOLLOWING ACTION:

_____ APPROVED PETITION OR REQUEST.

_____ APPROVED PETITION OR REQUEST SUBJECT TO CONDITIONS LISTED ON ATTACHMENT #1.

X CONTINUED PETITION OR REQUEST TO **AUGUST 17, 2016** MEETING.

_____ DENIED PETITION OR REQUEST.

_____ REMOVED FROM THE AGENDA. IF YOU WOULD LIKE TO REAPPLY TO THE DRAINAGE BOARD *A NEW APPLICATION WILL NEED TO BE SUBMITTED*, 14 DAYS PRIOR TO THAT MONTH'S MEETING.

_____ PETITION NOT RELEASED DUE TO NON-PAYMENT OF APPLICATION FEE(S).

IF YOU HAVE ANY FURTHER QUESTIONS, PLEASE CONTACT BILL EMERSON, JR. OR DAN GOSSMAN AT (219) 755-3745.

Mary Ellen Kupsik
MARY ELLEN KUPSIK
Lake County Drainage Board Secretary

Cc: James & Janice Nichols

6-A
8-17-16

LANDMARK
ENGINEERING LLC
ENGINEERS PLANNERS SURVEYORS
7808 WEST 103RD STREET
PALOS HILLS, IL 60465
PHONE: (708) 599-3737
FAX: (708) 599-2291

TRANSMITTAL & DISPOSITION

RECEIVED
AUG 05 2016
LAKE COUNTY SURVEYOR

TO: Christopher B. Burke Engineering, LTD.
Attn: Mr. Thomas T. Burke, Jr., PhD, PE
9575 W. Higgins Rd. Suite 600
Rosemont, IL 60018-4920

DATE: August 5, 2016
JOB NO: 15-03-004
RE: **Windy Knoll**
Lake Co., IN

PLEASE FIND ENCLOSED THE FOLLOWING ITEMS:

COPIES	DATE	DESCRIPTION
1	8/5/16	Primary Plat (Revised, PDF)
1	7/23/16	Offsite Tributary Exhibit (Revised, PDF)
1	7/25/16	100-yr Critical Duration Analysis, TR20 (PDF)
1	7/25/16	HY-8 Input Model & Report (PDF)
1	7/16/16	Runoff Curve Number Worksheet
1	--	ADS Pipe Bedding Detail

THESE ARE TRANSMITTED AS CHECKED BELOW:

X FOR APPROVAL
FOR YOUR USE
AS REQUESTED

VIA FIRST CLASS MAIL
VIA FEDERAL EXPRESS
X VIA EMAIL

REMARKS:

Thomas,

Thank you for your continued cooperation with Landmark Engineering LLC. Pursuant to your review letter dated June 10, 2016, we offer the following disposition:

1. We have revised the plan to show 2' of cover over the proposed culverts.

2. The bedding details for HDPE pipe shall be per the manufacture's specifications. We have attached a PDF detail from ADS's website.

3. We have revised the grading at the culvert/driveway crossing and provided a detailed view on the plan.

4. We have revised the hydrologic modeling for the critical duration analysis to be TR-20 based using HydroCAD software. The peak flow (85.43 cfs) occurs at the 100-yr, 2-hr event.

5. We revised the runoff curve numbers (along with the tributary area). The HydroCAD report contains the information and we have attached a worksheet showing the breakdown used to input the data used for the overall curve number in the hydrologic model.

6. We have included a PDF exhibit of the tributary area (120 ac.). This exhibit was created using the County's watershed maps along with Google Earth to determine the various inputs for the runoff curve number.

7. We have included our input model for the HY-8 software modeling along with the report generated from HY-8.

If you have any questions or require any additional information for this site, please contact me at your convenience.

Best Regards,

Brad E. Hensley, P.E.
Vice President
LANDMARK ENGINEERING LLC

6-A
8-17-16

LANDMARK
ENGINEERING LLC
ENGINEERS PLANNERS SURVEYORS
7808 WEST 103RD STREET
PALOS HILLS, IL 60465
PHONE: (708) 599-3737
FAX: (708) 599-2291

TRANSMITTAL & DISPOSITION

RECEIVED
AUG 05 2016
LAKE COUNTY SURVEYOR

TO: Christopher B. Burke Engineering, LTD.
Attn: Mr. Thomas T. Burke, Jr., PhD, PE
9575 W. Higgins Rd. Suite 600
Rosemont, IL 60018-4920

DATE: August 5, 2016
JOB NO: 15-03-004
RE: **Windy Knoll**
Lake Co., IN

PLEASE FIND ENCLOSED THE FOLLOWING ITEMS:

COPIES	DATE	DESCRIPTION
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1	7/23/16	Offsite Tributary Exhibit (Revised, PDF)
1	7/25/16	100-yr Critical Duration Analysis, TR20 (PDF)
1	7/25/16	HY-8 Input Model & Report (PDF)
1	7/16/16	Runoff Curve Number Worksheet
1	--	ADS Pipe Bedding Detail

THESE ARE TRANSMITTED AS CHECKED BELOW:

X FOR APPROVAL
FOR YOUR USE
AS REQUESTED

VIA FIRST CLASS MAIL
VIA FEDERAL EXPRESS
X VIA EMAIL

REMARKS:

Thomas,

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2. The bedding details for HDPE pipe shall be per the manufacture's specifications. We have attached a PDF detail from ADS's website.

3. We have revised the grading at the culvert/driveway crossing and provided a detailed view on the plan.

4. We have revised the hydrologic modeling for the critical duration analysis to be TR-20 based using HydroCAD software. The peak flow (85.43 cfs) occurs at the 100-yr, 2-hr event.

5. We revised the runoff curve numbers (along with the tributary area). The HydroCAD report contains the information and we have attached a worksheet showing the breakdown used to input the data used for the overall curve number in the hydrologic model.

6. We have included a PDF exhibit of the tributary area (120 ac.). This exhibit was created using the County's watershed maps along with Google Earth to determine the various inputs for the runoff curve number.

7. We have included our input model for the HY-8 software modeling along with the report generated from HY-8.

If you have any questions or require any additional information for this site, please contact me at your convenience.

Best Regards,

Brad E. Hensley, P.E.
Vice President
LANDMARK ENGINEERING LLC

6-A
6-15-16

Christopher B. Burke Engineering, LLC

One Professional Center Suite 314 Crown Point, IN 46307 219.663.3410 cbbel-in.com

June 10, 2016

RECEIVED
JUN 10 2016
LAKE COUNTY SURVEYOR

Landmark Engineering, LLC
7808 W. 103rd Street
Palos Hills, IL 60465

Attention: Brad Hensley, PE
Vice President

Subject: **Windy Knoll Estates**
Watercourse: Bull Run
Applicant: James & Janice Nichols
Engineer: Landmark Engineering, LLC
(CBBEL Project No. 93-169)

Dear Mr. Hensley:

At the request of the Lake County Surveyor's Office (LCSO), Christopher B. Burke Engineering, LLC (CBBEL) has performed a review of the material submitted for the subject project by Landmark Engineering, LLC. (Landmark). The project consists of the construction of a 3-lot residential subdivision east of Sheffield Avenue, approximately 1000 ft. north of 101st Avenue in Unincorporated Lake County, Indiana. A crossing of Bull Run is required to access the eastern lots of the subdivision. Bull Run does not contain mapped floodplain or floodway according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Lake County, Indiana and Incorporated Areas, Panels 210 of 480, dated January 18, 2012. The crossing location of Bull Run contains less than one square mile of drainage area; therefore, no permit from the Indiana Department of Natural Resources – Division of Water is required. The purpose of the CBBEL review was to comment on compliance with the Lake County, Indiana Stormwater Management Ordinance (Ordinance) and standard engineering methods. It is our understanding that DLZ completed a review on behalf of the LCSO for the Lake County Plan Commission regarding stormwater quantity and quality of the development. This review will consider the crossing of Bull Run and any other encroachments within the Lake County Drainage Board 75-ft. drainage easement.

CBBEL received the following items for review:

- Transmittal Letter, prepared by Landmark, dated May 26, 2016.
- Lake County Drainage Board Permit Application
- Stormwater Management Report, prepared by Landmark, dated March 15, 2016.
- "Primary Plat for Windy Knoll Estates" Plan Set, prepared by Landmark, dated March 15, 2016.

CBBEL staff has reviewed the supplied information and provides the following comments:

1. The proposed crossing only shows 1 ft. of cover over the twin 36-inch HDPE crossing. We recommend that a minimum of 2 ft. of cover be provided in accordance with the Ordinance.
2. Bedding details should be provided for the HDPE pipe in accordance within flexible pipe standards and manufacturer recommendations.
3. Proposed transitional grading should be provided at the crossing to reflect the top of roadway elevations and estimated limits of fill within the drainage easement. All areas outside of the gravel driveway should be properly stabilized and vegetated to reflect existing conditions.
4. TR-55 is not an acceptable hydrologic model to determine the peak flowrate of Bull Run. A public domain hydrologic model capable of producing hydrographs should be used (i.e. – TR-20, HEC-1, HEC-HMS, etc.) to determine the peak flowrate at the proposed crossing. This entails completing a critical duration analysis using Huff rainfall distributions for the watershed.
5. Back-up calculations should be provided to justify the use of a 65 runoff curve number assuming the entire watershed is wood/grass hydrologic soil (HSG) B land use. Utilizing the USDA NRCS soil survey map, it appears that all upstream area contains either C or D HSGs and contains several residential developments. The calculations should be revised accordingly.
6. An exhibit showing the tributary area should be provided to verify the value used in the submitted hydrologic modeling of Bull Run. Based on a preliminary calculation, we estimate that the tributary area may be twice as large as noted in the stormwater report.
7. The proposed crossing should be sized using HY-8 or similar and assume the proposed culverts will convey the 100-year peak flowrate below the top of bank (+/- 678 ft.).

If you have any questions please do not hesitate to call (847) 823-0500.

Sincerely,

Thomas T. Burke, Jr, PhD, PE
Vice President
Head, Water Resources Department

CC: Bill Emerson, Jr. – Lake County Surveyor
Dan Gossman – LCSO
Mary Ellen Kupsik – LCSO

DCO\
N:\INDIANA\93169\2016\Reviews\L_Windy Knoll Estates 061016.docx

6-A
6-15-16

APPLICATION NO. 298-6-16-I-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

RECEIVED
MAY 27 2016
LAKE COUNTY SURVEYOR

[X] I. **WORK WITHIN A REGULATED DRAIN**

[ ] II. **CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**

[X] III. **PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**

[ ] IV. **REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) LANDMARK ENGINEERING LLC

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: BULL RUN

SECTION(s): 36 TOWNSHIP: 35 RANGE: 10

ADDRESS OR DESCRIPTION OF LOCATION: 9449 SHEFFIELD - Dyer

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

Placement of a culvert crossing

THE PURPOSE OF THE REQUEST IS TO:

Allow property owner to access the easterly portion of his property and develop two additional residential lots.

1. THE APPLICANT HEREBY AGREES TO RESTORE THE LAND, DRAINAGE DITCHES AND ALL OTHER SURFACES AND/OR STRUCTURES WITHIN THE DITCH AND REGULATED DRAIN EASEMENT TO A CONDITION AS GOOD OR BETTER THAN THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE APPLICANT SHALL AND WILL INDEMNIFY AND HOLD HARMLESS ANY AND ALL COUNTY ENTITIES, INCLUDING BUT NOT LIMITED TO THE COUNTY OF LAKE, BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND/OR AGENTS FROM AND AGAINST ANY AND ALL DAMAGES, INJURIES, LOSSES, DEMANDS, OR COSTS PROXIMATELY CAUSED BY THE FAULT, CULPABILITY OR NEGLIGENCE OF THE APPLICANT IN THE PERFORMANCE OF THE PERMITTED WORK OVER AND ACROSS THE DRAINS OR DRAINAGE RIGHTS-OF-WAY UNDER THE JURISDICTION OF THE LAKE COUNTY DRAINAGE BOARD.

3. **IMPORTANT CLAUSE IN THIS PERMIT APPLICATION: THE APPLICANT FURTHER AGREES TO NOTIFY THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR IN WRITING AT LEAST FIVE (5) DAYS IN ADVANCE OF THE COMMENCEMENT OF THE WORK DESCRIBED IN THIS APPLICATION, AND WILL ALSO GIVE NOTICE TO THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR THE DAY PRECEDING THE COMPLETION OF THE WORK. FAILURE TO PROVIDE SUCH NOTICE MAY CAUSE REVOCATION OF THE PERMIT(S) AND APPLICANT MAY INCUR PENALTIES. PLEASE SEND NOTICES TO: LAKE COUNTY DRAINAGE BOARD, ATTN: LAKE COUNTY DRAINAGE BOARD SECRETARY, 2293 N. MAIN STREET, CROWN POINT, IN 46307**

4(a). THE APPLICANT AGREES TO AVOID CAUSING DAMAGE TO THE ESTABLISHED REGULATED DRAIN OR TO LANDOWNERS AFFECTED BY THE DRAIN, PURSUANT TO I.C.36-9-27-72(D).

4(b). FOR APPLICATIONS REGARDING THE PLACEMENT OF TEMPORARY STRUCTURES IN THE DRAIN'S EASEMENT (BOX III, PAGE 1), SUCH AS FENCES, TREES, GARDENS, SHEDS, ETC., THE APPLICANT UNDERSTANDS THAT, IF THE DRAINAGE BOARD GRANTS PERMISSION TO PLACE SAID TEMPORARY STRUCTURES WITHIN THE DRAINAGE EASEMENT, SAID PLACEMENT IS AT THE OWNER'S RISK. SHOULD THE COUNTY SURVEYOR/DRAINAGE BOARD, THEIR AGENTS, REPRESENTATIVES, CONTRACTORS OR OTHERS AT THE DIRECTION OF SAID COUNTY SURVEYOR/DRAINAGE BOARD, NEED ACCESS TO THE DRAIN OR EASEMENT AND THE STRUCTURE REQUIRES REMOVAL, THE OWNER SHALL REMOVE SAME AT THE OWNER'S EXPENSE. SHOULD THE OWNER FAIL TO REMOVE SAME IN A TIMELY FASHION, THEN THE COUNTY SURVEYOR/DRAINAGE BOARD SHALL CAUSE SAME TO BE REMOVED AND THE OWNER SHALL HAVE NO RECOURSE. AFTER COMPLETION OF THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S ACTIVITY, THE OWNER SHALL HAVE THE RIGHT TO REINSTALL THE TEMPORARY STRUCTURE IN COMPLIANCE WITH THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S REQUIREMENTS. THE COUNTY SURVEYOR/DRAINAGE BOARD MAY REQUIRE PAYMENT FROM THE OWNER FOR THE COST OF THE REMOVAL OR REPLACEMENT FOR ANY OF SAID ITEMS, PURSUANT TO STATUTE.

5. THE APPLICANT SHALL HAVE WORKMAN'S COMPENSATION INSURANCE AS REQUIRED BY STATE LAW.

6. THE APPLICANT SHALL PAY THE LAKE COUNTY SURVEYOR'S OFFICE AN APPLICATION FEE(S) PRIOR TO THE APPLICATION BEING CONSIDERED AT THE NEXT MONTHLY LAKE COUNTY DRAINAGE BOARD MEETING.

7. THE APPLICANT SHALL CARRY PUBLIC LIABILITY INSURANCE MEETING THE MAXIMUM DOLLAR LIMITS AS SPECIFIED IN I.C. 34-13-3-1 ET SEQ. OR ANY SUBSEQUENTLY ENACTED APPLICABLE STATUTES, AND SHALL LIST THE COUNTY OF LAKE, THE BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND AGENTS AS OTHER INSUREDS.

8. THIS PERMIT DOES NOT OBVIATE THE NEED TO OBTAIN ANY OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATION, IF REQUIRED.

9 BY SUBMITTING THIS APPLICATION, THE APPLICANT HEREBY STATES THE FOLLOWING:

A. **THE PROPOSED WORK MEETS ALL HYDRAULIC REQUIREMENTS THAT WILL PERMIT THE DRAIN TO FUNCTION PROPERLY. (I.C. 36-9-37-72 (C)).**
B. **THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY**
C. **NO HARMFUL POLLUTION IS LIKELY TO RESULT. (I.C. 36-9-27-17(C)).**

10. ENGINEERING PLANS, WHICH SUBSTANTIATE THE ABOVE STATEMENTS, MUST ACCOMPANY THIS APPLICATION. THESE PLANS MUST INCLUDE SUFFICIENT DETAIL TO ALLOW VERIFICATION OF THE ABOVE STATEMENTS. (THESE PLANS SHOULD GENERALLY INCLUDE DIMENSIONS, ELEVATIONS, CALCULATIONS, DESCRIPTIONS OR THE QUANTITIES AND TYPES OF MATERIAL TO BE USED, DISCHARGE CALCULATIONS AND OTHER RELEVANT INFORMATION.)

11. UPON COMPLETION OF THE WORK, "AS BUILT PLANS", SIGNED AND SEALED BY AN INDIANA REGISTERED PROFESSIONAL ENGINEER, SHALL BE FORWARDED TO THE LAKE COUNTY DRAINAGE BOARD WITHIN 30 DAYS.

12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: Mark Landstrom DATE: 3/23/16
(PRINT OR TYPE NAME)

(SIGNATURE)

SUBMITTED FOR: James & Janice Nichols

ADDRESS: 9449 Sheffield Avenue
Dyer, IN 46311

PHONE#: (219) 365-3742

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

DATE:_____ APPROVED:_____ DENIED:_____

SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT* I]**

APPROVAL SHALL BE VALID FOR A PERIOD OF TWO YEARS FROM THE DATE OF APPROVAL. *SHOULD THE WORK AND ALL RELATED ACTIVITIES NOT BE COMPLETED BY THAT TIME, PETITIONER IS REQUIRED TO REAPPLY. SHOULD THE SCOPE OF WORK, PLANS AND SPECIFICATIONS, OR ACTIVITIES LISTED HEREIN BE MODIFIED, PETITIONER MUST NOTIFY THE LAKE COUNTY SURVEYOR AND THE DRAINAGE BOARD OF THESE MODIFICATIONS FOR REVIEW AND/OR APPROVAL/DENIAL BY THE COUNTY SURVEYOR/DRAINAGE BOARD.*

"ATTACHMENT I"

IN THE MATTER OF: BULL RUN
(Name of Regulated Drain)

9449 SHEFFIELD - Dyer S1/2 SE1/4 SECTION 36-35-10
(Location)

POWER OF ATTORNEY
(If Applicable)

That I, JAMES & JANICE NICHOLS, born 1-27-47 - 11-12-47, of DYER, Indiana, do hereby make, constitute and appoint MARK LANDSTROM LANDMARK ENGINEERING LLC, born JULY 6, 1955, of PALOS HILLS, IL, ~~Indiana~~ my true and lawful attorney-in-fact, for me and in my name, place and stead to exercise the following:

To represent me in all matters pertaining to the attached Application/Petition, before the Lake County Drainage Board;

To execute instruments required for said Application/Petition;

To do and perform each and every act and thing whatsoever requisite and necessary or proper to be done in all matters affecting said Application/Petition, and with the same force and effect as though I were personally present and acting for myself;

I do hereby ratify and confirm all that my attorney shall do or cause to be done, by virtue of this power of attorney.

James C. Nichols Janice A. Nichols

STATE OF INDIANA)
)
COUNTY OF LAKE)

Subscribed and sworn to before me a Notary Public in and for _____ said County and State came _____ and acknowledged the foregoing instrument this _____ day of _____, 200___.

Peggy J. Schilling

Commission Expires: May 3 2017
Lake County Resident: Lake

PEGGY J. SCHILLING
Lake County
My Commission Expires
May 3, 2017

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

6-B

NOTICE OF ACTION
Application No. 300-7-16-I-II-III

July 20, 2016

Mr. Jack Slager
Preserve, S.J. LLC
8900 Wicker Avenue
St. John, IN 46373

DEAR PETITIONER:

THIS NOTICE IS TO INFORM YOU THAT YOUR PETITION OR REQUEST FOR

Bull Run Ditch, St. John Twp.
Applicant: Perserve, S.J., LLC
Application to "Perform Work", "Connect/Discharge" and "Place Temporary/Permanent Structure" within regulated drain for the purpose of a subdivision development.

WAS CONSIDERED BY THE DRAINAGE BOARD AT A MEETING ON THE 20th DAY OF **July, 2016** WITH THE FOLLOWING ACTION:

_____ APPROVED PETITION OR REQUEST.

_____ APPROVED PETITION OR REQUEST SUBJECT TO CONDITIONS LISTED ON ATTACHMENT #1.

_X_ CONTINUED PETITION OR REQUEST TO **AUGUST 17, 2016** MEETING.

_____ DENIED PETITION OR REQUEST.

_____ REMOVED FROM THE AGENDA. IF YOU WOULD LIKE TO REAPPLY TO THE DRAINAGE BOARD *A NEW APPLICATION WILL NEED TO BE SUBMITTED*, 14 DAYS PRIOR TO THAT MONTH'S MEETING.

_____ PETITION NOT RELEASED DUE TO NON-PAYMENT OF APPLICATION FEE(S).

IF YOU HAVE ANY FURTHER QUESTIONS, PLEASE CONTACT BILL EMERSON, JR. OR DAN GOSSMAN AT (219) 755-3745.

Mary Ellen Kupsik
MARY ELLEN KUPSIK
Lake County Drainage Board Secretary

6-A
6-15-16

APPLICATION NO. 298-6-16-I-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

RECEIVED
MAY 27 2016
LAKE COUNTY SURVEYOR

[X] **I. WORK WITHIN A REGULATED DRAIN**

[ ] **II. CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**

[X] **III. PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**

[ ] **IV. REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) LANDMARK ENGINEERING LLC

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: BULL RUN

SECTION(s): 36 TOWNSHIP: 35 RANGE: 10

ADDRESS OR DESCRIPTION OF LOCATION: 9449 SHEFFIELD - Dyer

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

Placement of a culvert crossing

THE PURPOSE OF THE REQUEST IS TO:

Allow property owner to access the easterly portion of his property and develop two additional residential lots.

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B. THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY

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12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: Mark Landstrom DATE: 3/23/16
(PRINT OR TYPE NAME)

(SIGNATURE)

SUBMITTED FOR: James & Janice Nichols

ADDRESS: 9449 Sheffield Avenue
Dyer, IN 46311

PHONE#: (219) 365-3742

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

Larry Scheub

Kyle W. Allen Sr.

DATE: AUGUST 17, 2016 APPROVED: X * DENIED:

SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT* I]**

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*APPROVED WITH CONDITIONS. SEE ATTACHED "NOTICE OF ACTION".

"ATTACHMENT I"

IN THE MATTER OF: BULL RUN
(Name of Regulated Drain)

9449 SHEFFIELD - Dyer S1/2 SE1/4 SECTION 36-35-10
(Location)

POWER OF ATTORNEY

(If Applicable)

That I, JAMES & JANICE NICHOLS, born 1-27-47 - 11-12-47, of DYER, Indiana, do hereby make, constitute and appoint MARK LANDSTROM LANDMARK ENGINEERING LLC, born JULY 6, 1955, of PALOS HILLS, IL, ~~Indiana~~ my true and lawful attorney-in-fact, for me and in my name, place and stead to exercise the following:

To represent me in all matters pertaining to the attached Application/Petition, before the Lake County Drainage Board;

To execute instruments required for said Application/Petition;

To do and perform each and every act and thing whatsoever requisite and necessary or proper to be done in all matters affecting said Application/Petition, and with the same force and effect as though I were personally present and acting for myself;

I do hereby ratify and confirm all that my attorney shall do or cause to be done, by virtue of this power of attorney.

STATE OF INDIANA)
)
COUNTY OF LAKE)

Subscribed and sworn to before me a Notary Public in and for _____ said County and State came _____ and acknowledged the foregoing instrument this _____ day of _____, 200___.

Commission Expires: May 3 2017
Lake County Resident: Lake

PEGGY J. SCHILLING
Lake County
My Commission Expires
May 3, 2017

6-A
6-15-16

Christopher B. Burke Engineering, LLC

One Professional Center Suite 314 Crown Point, IN 46307 219.663.3410 cbbel-in.com

June 10, 2016

RECEIVED
JUN 10 2016
LAKE COUNTY SURVEYOR

Landmark Engineering, LLC
7808 W. 103rd Street
Palos Hills, IL 60465

Attention: Brad Hensley, PE
Vice President

Subject: **Windy Knoll Estates**
Watercourse: Bull Run
Applicant: James & Janice Nichols
Engineer: Landmark Engineering, LLC
(CBBEL Project No. 93-169)

Dear Mr. Hensley:

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CBBEL staff has reviewed the supplied information and provides the following comments:

1. The proposed crossing only shows 1 ft. of cover over the twin 36-inch HDPE crossing. We recommend that a minimum of 2 ft. of cover be provided in accordance with the Ordinance.
2. Bedding details should be provided for the HDPE pipe in accordance within flexible pipe standards and manufacturer recommendations.
3. Proposed transitional grading should be provided at the crossing to reflect the top of roadway elevations and estimated limits of fill within the drainage easement. All areas outside of the gravel driveway should be properly stabilized and vegetated to reflect existing conditions.
4. TR-55 is not an acceptable hydrologic model to determine the peak flowrate of Bull Run. A public domain hydrologic model capable of producing hydrographs should be used (i.e. – TR-20, HEC-1, HEC-HMS, etc.) to determine the peak flowrate at the proposed crossing. This entails completing a critical duration analysis using Huff rainfall distributions for the watershed.
5. Back-up calculations should be provided to justify the use of a 65 runoff curve number assuming the entire watershed is wood/grass hydrologic soil (HSG) B land use. Utilizing the USDA NRCS soil survey map, it appears that all upstream area contains either C or D HSGs and contains several residential developments. The calculations should be revised accordingly.
6. An exhibit showing the tributary area should be provided to verify the value used in the submitted hydrologic modeling of Bull Run. Based on a preliminary calculation, we estimate that the tributary area may be twice as large as noted in the stormwater report.
7. The proposed crossing should be sized using HY-8 or similar and assume the proposed culverts will convey the 100-year peak flowrate below the top of bank (+/- 678 ft.).

If you have any questions please do not hesitate to call (847) 823-0500.

Sincerely,

Sharon Feral for

Thomas T. Burke, Jr, PhD, PE
Vice President
Head, Water Resources Department

CC: Bill Emerson, Jr. – Lake County Surveyor
Dan Gossman – LCSO
Mary Ellen Kupsik – LCSO

DCO\
N:\INDIANA\93169\2016\Reviews\L_Windy Knoll Estates 061016.docx

LANDMARK
ENGINEERING LLC
ENGINEERS PLANNERS SURVEYORS
7808 WEST 103RD STREET
PALOS HILLS, IL 60465
PHONE: (708) 599-3737
FAX: (708) 599-2291

TRANSMITTAL

To: **LAKE COUNTY DRAINAGE BOARD**
c/o Lake County Surveyor's Office
2293 N. Main Street, Building A, 3rd Floor
Crown Point, IN 46307

Date: May 26, 2016
Job No: 15-03-004
Re: **WINDY KNOLL ESTATES**
Dyer, IN

Attn: Ms. Mary Ellen Kupsik

PLEASE FIND ENCLOSED THE FOLLOWING ITEMS:

COPIES	DATE	DESCRIPTION
1	3-15-16	Primary Plat Plans (Approved)
1	4-29-16	Offsite Tributary Exhibit
1	3-15-16	Stormwater Management Report
1	--	Lake County Storm Water Permit Approval
1	--	Permit Application (Culvert)
1	5-16-16	Lake County Engineers' Approval Letter

THESE ARE TRANSMITTED AS CHECKED BELOW:

X FOR APPROVAL
FOR YOUR USE
AS REQUESTED

VIA FIRST CLASS MAIL
X VIA FedEX OVERNIGHT
VIA MESSENGER

Ms. Kupsik:

Pursuant to our telephone conversation, I have enclosed one (1) set of the approved Primary Plat plans and one (1) copy of all additional items listed for Windy Knoll Estates for your review and approval. Thank you for your continued cooperation with **LANDMARK** on this and other projects.

Sincerely,

Brad E. Hensley, PE
Vice President
LANDMARK ENGINEERING LLC

MKC

cc: Christopher Burke Engineering, Mr. Thomas Burke w/enclosures

LAKE COUNTY STORM WATER PERMIT

Lake County MS4 Program* 2293 N. Main St. * Crown Point, IN 46307
Phone: (219) 755-3745 * Fax: (219) 755-3750

GENERAL PROJECT INFORMATION	
Project Name:	Windy Knoll Estates
Project Location:	9949 S. Sheffield Avenue, Dyer, Indiana 46311
Project Acreage:	16.5
Hydrologic Unit Code:	07120001140010
Plan Received Date:	09/03/2015
Plan Reviewed Date:	05/18/16 Approved, Expires 05/18/2021
Project Owner's Name:	**James & Janice Nichols**
Address:	9949 S. Sheffield Avenue,
City/State/Zip:	Dyer, Indiana 46311
Phone:	219-365-3742
E-Mail:	

PLAN PREPARER	
Plan Preparer:	Mark Landstrom/Brad E. Hensley, Landmark Engineering, LLC
Address:	7808 W. 103rd Street,
City/State/Zip:	Palos Hills, IL 60465
Phone:	708-599-3737 **Fax:** 708-599-2291
E-Mail:	bhensley@landmark80.com

PLAN REVIEWERS (Technical)	
Plan Reviewer:	DLZ - Frank Stewart (Quantity and Quality)
Address:	900 Ridge Rd.
City/State/Zip:	Munster, IN 46321
Phone:	(219) 836-5884
E-Mail:	fstewart@dlz.com

☒ **PLAN IS ADEQUATE**

A comprehensive plan review has been completed and it has been determined that the plan satisfies the minimum requirements of 327 IAC 15-5 and Lake County Ordinance #1365C. Submit Rule 5 Notice of Intent (State Form 47487) to Indiana Department of Environmental Management (IDEM) – Office of Water Quality. Attach this permit with your Rule 5 submittal to IDEM.

Plan Approval Authorization:

(Signature/ date) _____ _____

Richard Budziak/ Dan Gossman - MS4 Department *Juan Lopez - Surveying Department*

This review is an evaluation of the submitted Storm Water Pollution Prevention Plan (SWPPP). The Plan has not been reviewed for other local, state, or federal permits that may be required to proceed with this project. All proposed storm water pollution prevention measures and those referenced in this review must meet the design criteria and standards set forth in the Lake County Storm Water Technical Standards Manual, Indiana Storm Water Quality Manual or equivalent Guidance Documents.

Comments:

A comprehensive review of the SWPPP has been conducted for compliance with local Ordinance # 1365C. The activities associated with the construction of this project will be subject to periodic MS4 compliance inspections and regulations through the Lake County Storm Water Management Ordinance #1365C. Violations may result in fines, stoppage of work, imprisonment as well as referral to state and federal regulatory agencies for additional enforcement.

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

May 18, 2016

Ned Kovachevich
DIRECTOR, LAKE COUNTY PLAN COMMISSION
2293 NORTH MAIN STREET
CROWN POINT, IN 46307

RE: Windy Knoll Estates [15-008]

Dear Ned,
Attached comments are information to the LCPC and are intended to clarify quantity and quality of storm water requirements with Engineering and construction contractors supporting this project.
DLZ Indiana, Inc.'s [Frank Stewart] has reviewed this site with LCSO staff and self. We have no objections with a **secondary approval.**
Should comments or concerns be listed, this office will forward any additional information submitted to us upon receipt of same, as well as our additional comments, if appropriate.
Please note:
1] NO CONSTRUCTION CAN BEGIN UNTIL A STORMWATER PERMIT IS OBTAINED.

2] A pre-construction meeting must take place with Lake County MS4 department 48 hours prior to construction, also contact Chris Brown or Rich Budziak @219-755-3745.

3] "Prior to any earth disturbing activities on each individual lot, the lot owner must review the Stormwater Obligations pamphlet for Lake County and sign an acknowledgment agreement form that they have received such pamphlet for stormwater obligations in unincorporated Lake County, Indiana. Copies of the pamphlet are available at the Lake County Surveyor's Office."

Juan Lopez, Surveying Administrator

LCSO MS 4 REPRESENTATIVE

Enclosures
COMMENTS

___x___	**APPROVED Secondary**
_____	DENIED
_____	DEFER: IF FURTHER SUBMISSIONS/REVISIONS ARE REQUIRED, PLEASE FILE SAME WITH THE LAKE COUNTY SURVEYOR'S OFFICE.
_____	NO COMMENT-ENGINEERING REVIEW FEE NOT COLLECTED

cc:

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES

INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

FACSIMILE / EMAIL TRANSMISSION COVER SHEET

Date: May 16, 2016

To: Juan Lopez

Organization: Lake County Surveyor's Office

Phone: 219-755-3745

Fax: 219-755-3750

From: Frank Stewart

Number of Pages Transmitted Including This Page: 1

If there is any difficulty encountered with this transmission, please call (219) 836-5884

Project: **Windy Knoll Estates**

Subject: Drainage review of above reference project

Dear Juan,

DLZ Indiana, LLC (DLZ) has reviewed the initial plans, response to comments and revised plans for the above referenced project at the direction of the Lake County Surveyor's Office (LCSO). The reviewed was requested to determine compliance with the Lake County Ordinance 1365C (the Ordinance). The review was primarily conducted with consideration to the overall project release rate and impacts on the existing storm sewer system.

The submittal includes a request for variance from detention requirement. The project consists of a total of 3 residential lots, each larger than 3 acres and direct discharging to Bull Run Ditch. The calculations provided indicate the 100-year upstream runoff is contained within the channel along the site and a small increase of the 100-year peak release rate from the developed is also indicated. The small increase is not anticipated to significantly increase the peak elevations in Bull Run Ditch.

The submittal also includes a request for variance from water quality standards. The project proposes to incorporate a vegetative filter strip and includes an O & M Manual for the filter strip. While the filter strip alone does not meet all water quality requirements, it is recognized as a

accepted water quality practice and does provide water quality improvement to runoff with a minimal burden of maintenance on the property owner

DLZ concludes the final plans, studies / reports and responses provided to DLZ with respect to this project will satisfactorily meet the ordinance standards when constructed with the exceptions of the variances discussed above. DLZ recommends consideration for approval including the variances.

15-008

STORMWATER MANAGEMENT REPORT FOR:

WINDY KNOLL ESTATES
9949 SHEFFIELD AVENUE
DYER, IN
September 3, 2015
(Revised: January 5, 2016)
(Revised: March 15, 2016)

WINDY KNOLL ESTATES
9949 SHEFFIELD AVENUE
DYER, IN

NARRATIVE DESCRIPTION

This project is for a new 3-lot subdivision. The proposed subdivision stormwater will flow overland to the existing stream (Bull Run), which runs through the project site.

The existing residential site consists of 16.50 total acres of mostly undeveloped land. A single family home and two garages are located along Sheffield Avenue on the west side of the property. The surrounding properties are residential. The site currently predominantly drains toward Bull Run.

The proposed project includes subdividing the existing 16.50 ac residential property into three lots. The proposed lot sizes will be 10.10 ac (Lot 1), 3.40 ac (Lot 2) and 3.00 ac (Lot 3). The existing single family home and garages will remain on Lot 1 while two new single family homes will be constructed on Lots 2 & 3. The proposed development of this property will slightly increase the stormwater runoff rate from 7.38 cfs to 7.56 cfs during a 100-yr, 24-hr storm event (see attached HydroCAD calculations). *Due to the minimal increase of runoff, 0.18 cfs, caused by the development, we will respectfully request a detention waiver for this project.*

Temporary and permanent erosion and sedimentation control devices to be utilized during construction include silt fences and temporary seeding where required. These devices will be implemented on a precedence schedule outlined in the Stormwater Pollution Protection Plan (SWPPP) and on the construction documents. The general contractor will be responsible to continuously maintain sedimentation and erosion control devices. Established vegetative cover and rip-rap at the proposed culverts' ends will be used for permanent erosion and sedimentation control.

CALCULATIONS & EXHIBITS

Project: Windy Knoll Subdivision **Job No:** 15-03-004

Subject: Proposed Culvert(s) Capacity Calculations **Dated:** 3/15/16

TR55 flow calculations for upstream tributary area:

91.95 cfs

(see attached TR55 report)

PROPOSED CULVERT

D = 36" = 3'

n = 0.013 = HDPE (smooth walled)

S = 0.005

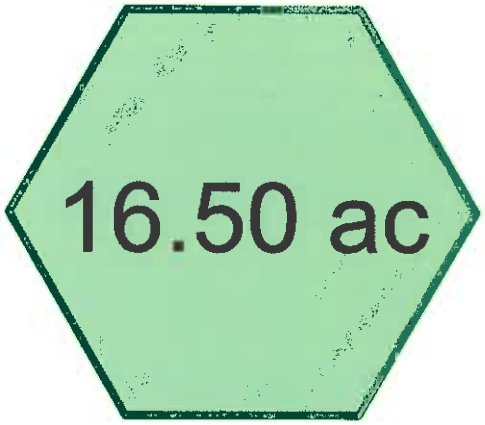
$$V = \frac{1.49}{0.013} \times \left(\frac{3}{4}\right)^{2/3} \times (0.005)^{1/2} = 6.69\ fps$$

$$Q = VA = 6.69\ fps \times \pi 1.5^2 = \boxed{47.29\ cfs}$$

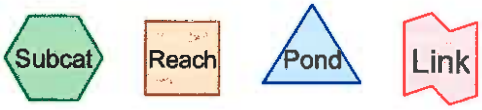
Note: This value will be double for two (2) culverts.

CONCLUSION

The proposed culverts have a greater capacity than the upstream tributary flow. Therefore, the plan will require 2-36" Culverts for the driveway crossing.



Windy Knoll Estates - Existing



Drainage Diagram for Existing
Prepared by LANDMARK ENGINEERING LLC, Printed 12/23/2015
HydroCAD® 9.10 s/n 03591 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
15.849	72	Woods/grass comb., Good, HSG C (16.50 ac)
0.362	89	Gravel roads, HSG C (16.50 ac)
0.074	98	Paved parking, HSG C (16.50 ac)
0.217	98	Roofs, HSG C (16.50 ac)
16.502		**TOTAL AREA**

Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Runoff = 19.68 cfs @ 0.28 hrs, Volume= 0.542 af, Depth= 0.39"

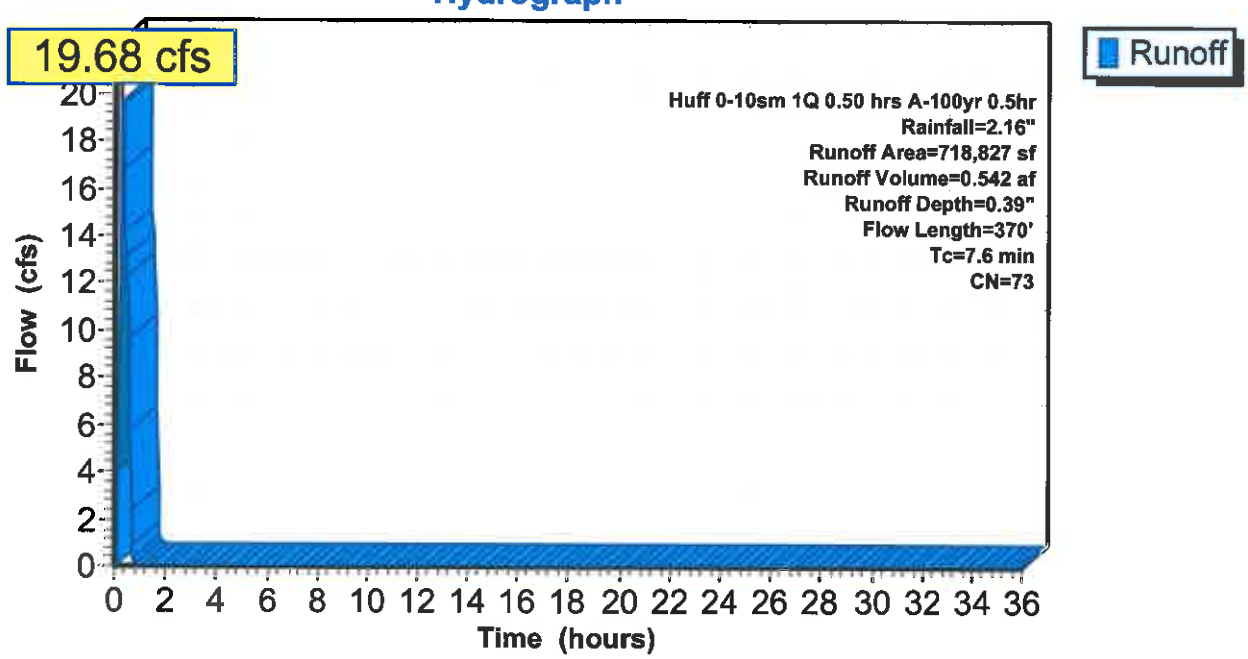
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 0.50 hrs A-100yr 0.5hr Rainfall=2.16"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Runoff = 20.54 cfs @ 0.38 hrs, Volume= 0.950 af, Depth= 0.69"

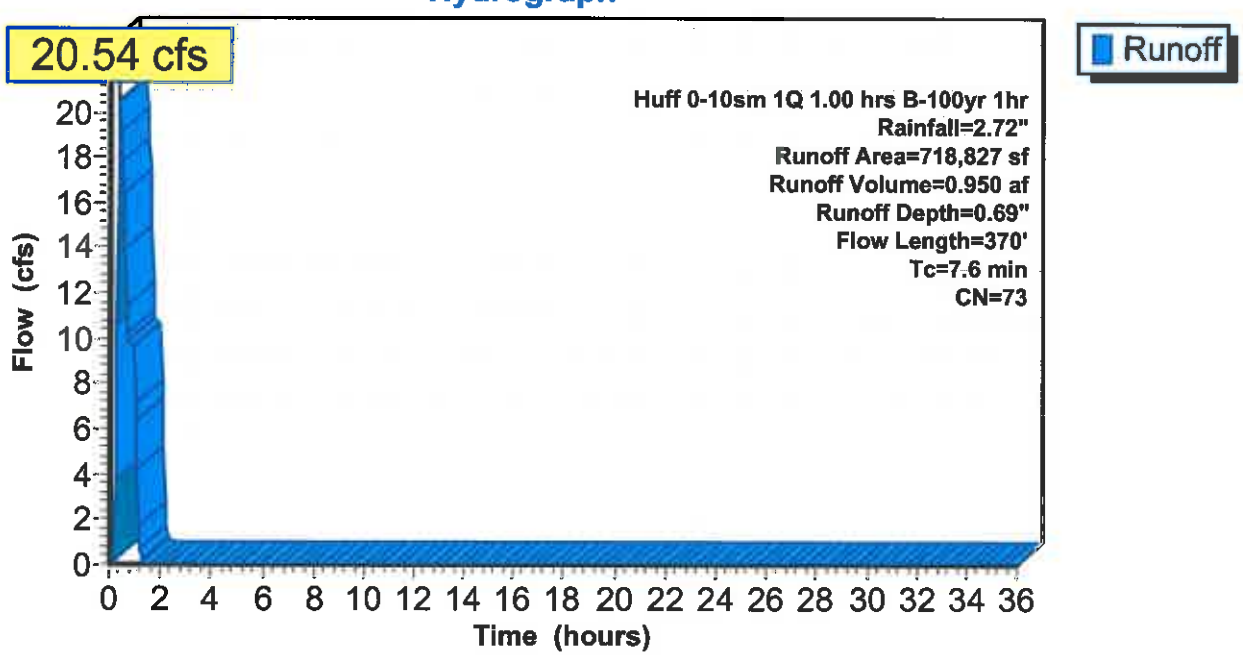
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 1.00 hrs B-100yr 1hr Rainfall=2.72"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Runoff = 14.31 cfs @ 0.83 hrs, Volume= 1.715 af, Depth= 1.25"

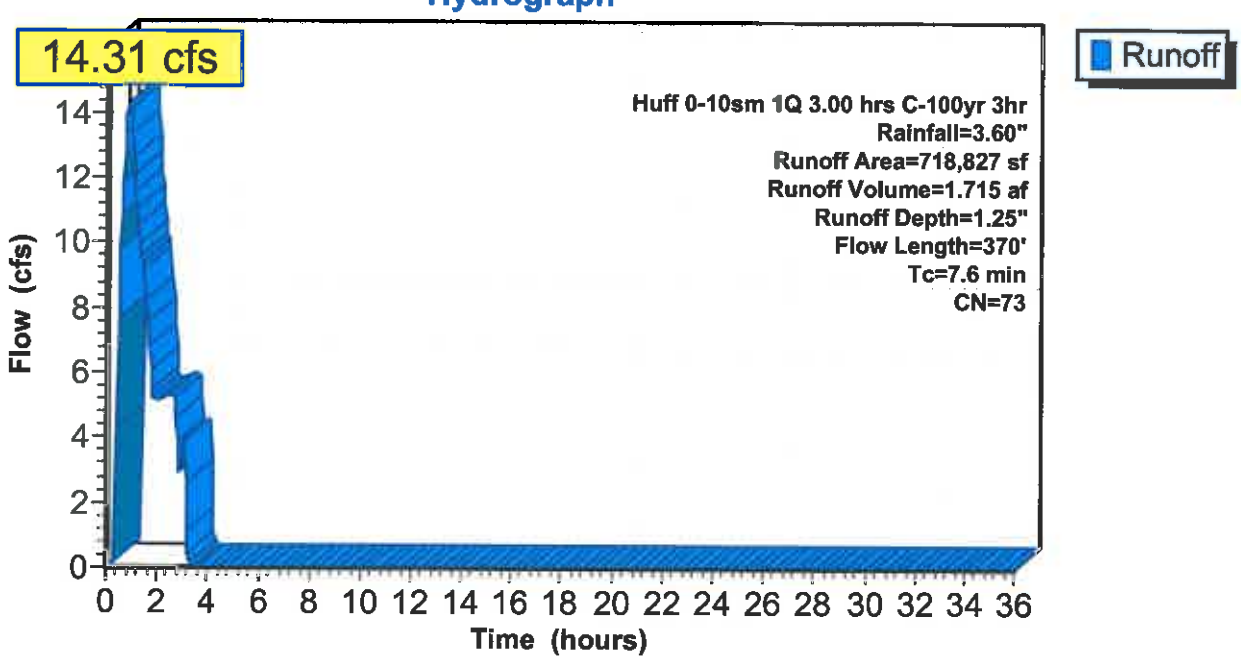
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 3.00 hrs C-100yr 3hr Rainfall=3.60"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Runoff = 10.28 cfs @ 1.54 hrs, Volume= 2.422 af, Depth= 1.76"

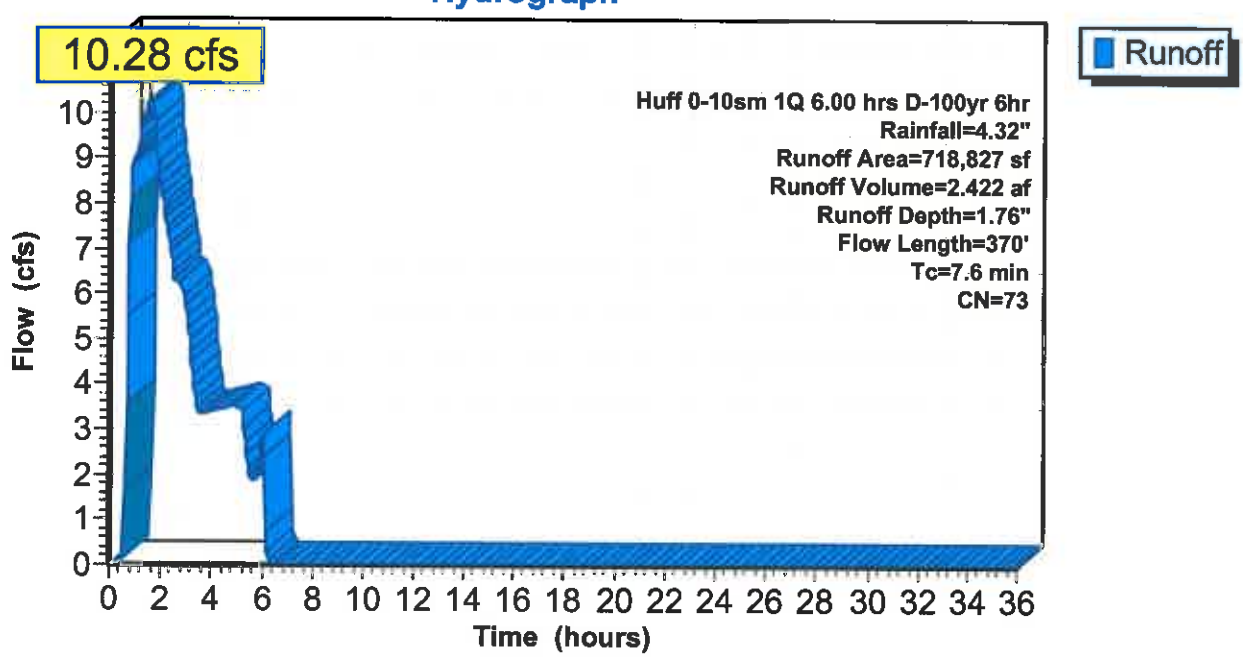
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 6.00 hrs D-100yr 6hr Rainfall=4.32"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

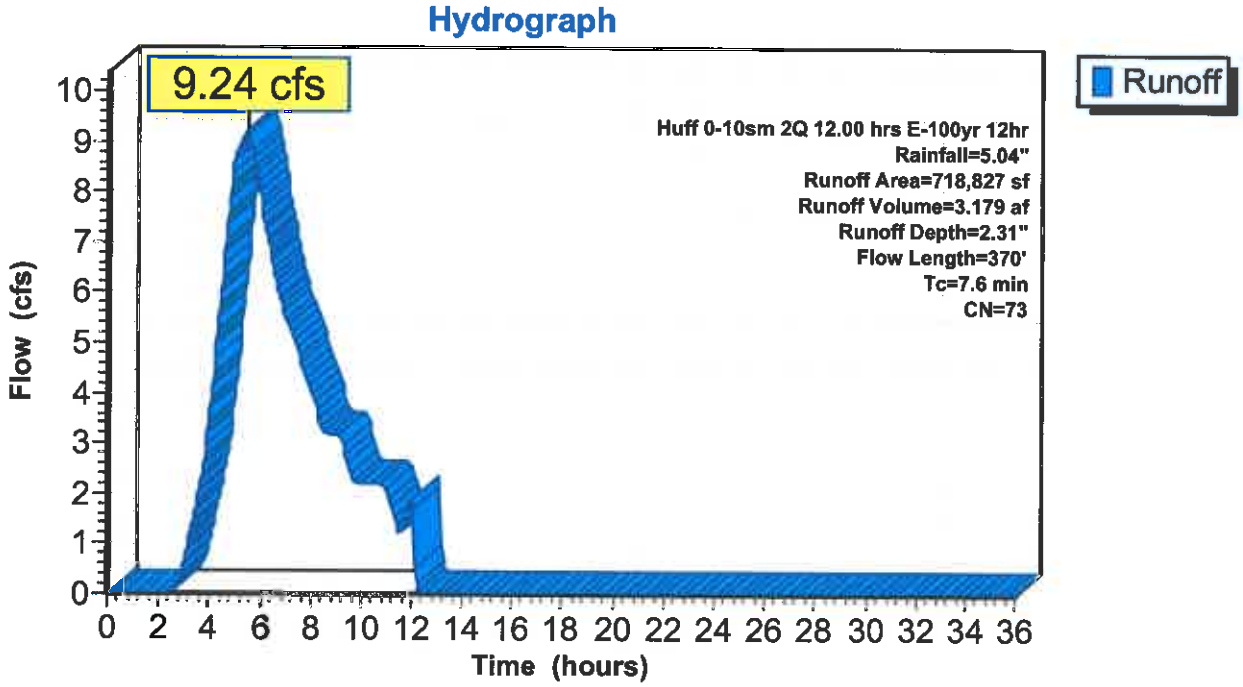
Runoff = 9.24 cfs @ 5.47 hrs, Volume= 3.179 af, Depth= 2.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 2Q 12.00 hrs E-100yr 12hr Rainfall=5.04"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Existing

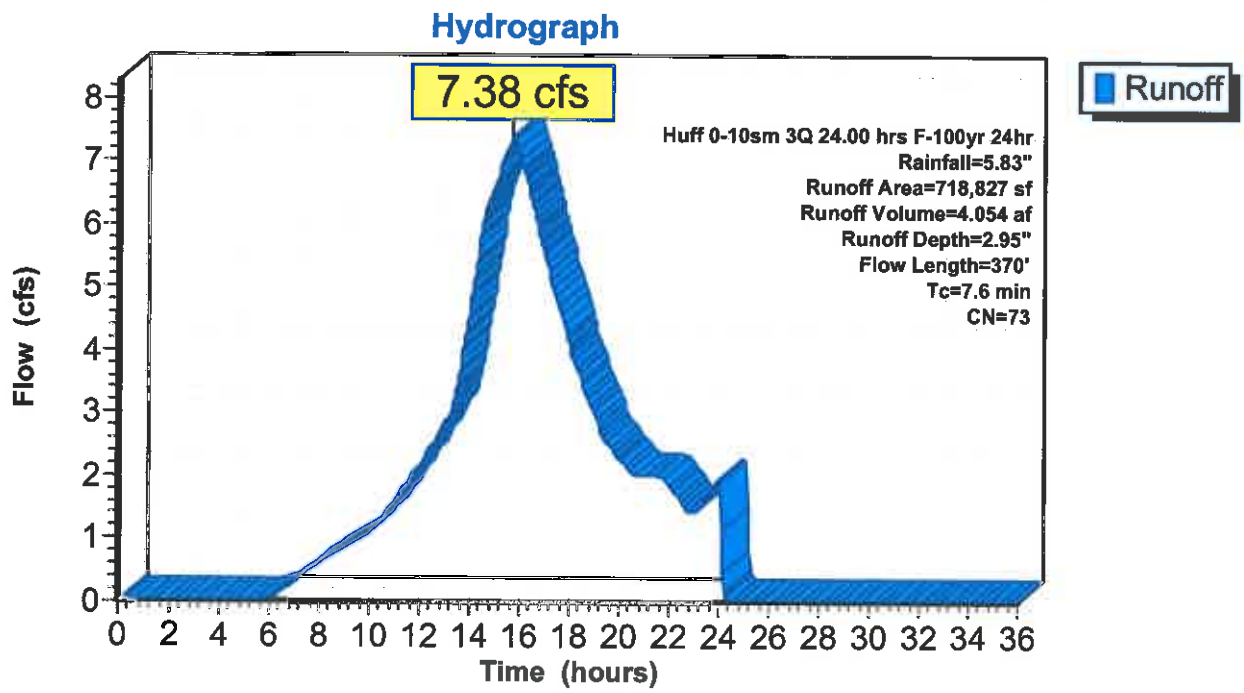
Runoff = 7.38 cfs @ 15.70 hrs, Volume= 4.054 af, Depth= 2.95"

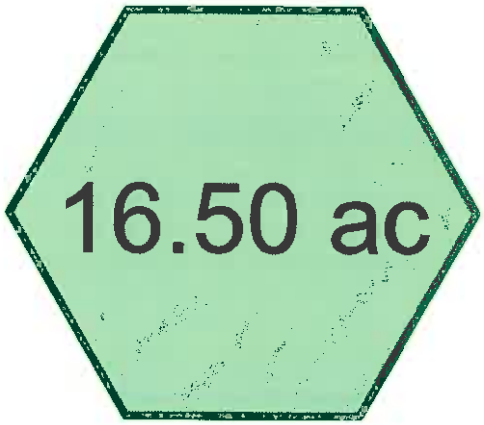
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 3Q 24.00 hrs F-100yr 24hr Rainfall=5.83"

Area (sf)	CN	Description
9,453	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
15,769	89	Gravel roads, HSG C
690,382	72	Woods/grass comb., Good, HSG C
718,827	73	Weighted Average
706,151		98.24% Pervious Area
12,676		1.76% Impervious Area

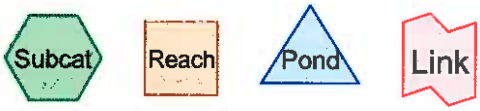
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Existing





Windy Knoll Estates - Proposed



Drainage Diagram for Proposed-R
Prepared by LANDMARK ENGINEERING LLC, Printed 12/23/2015
HydroCAD® 9.10 s/n 03591 © 2010 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
15.215	72	Woods/grass comb., Good, HSG C (16.50 ac)
0.875	89	Gravel roads, HSG C (16.50 ac)
0.074	98	Paved parking, HSG C (16.50 ac)
0.330	98	Roofs, HSG C (16.50 ac)
16.494		**TOTAL AREA**

Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Runoff = 21.41 cfs @ 0.28 hrs, Volume= 0.587 af, Depth= 0.43"

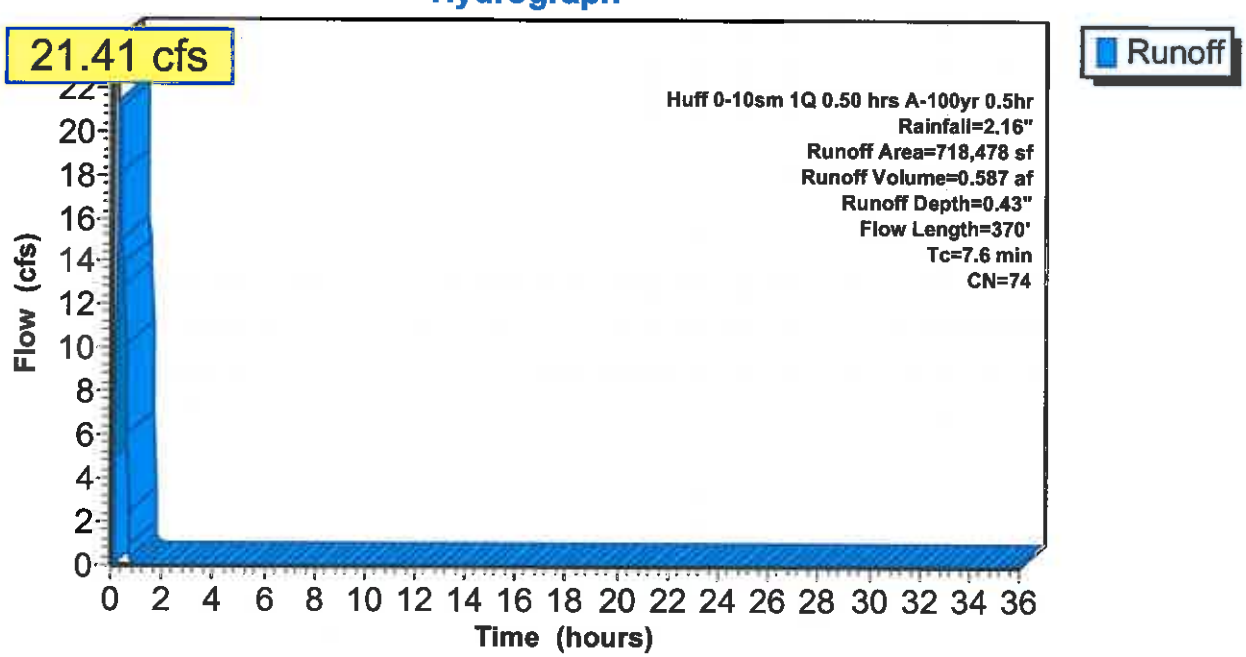
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 0.50 hrs A-100yr 0.5hr Rainfall=2.16"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Runoff = 22.28 cfs @ 0.37 hrs, Volume= 1.011 af, Depth= 0.74"

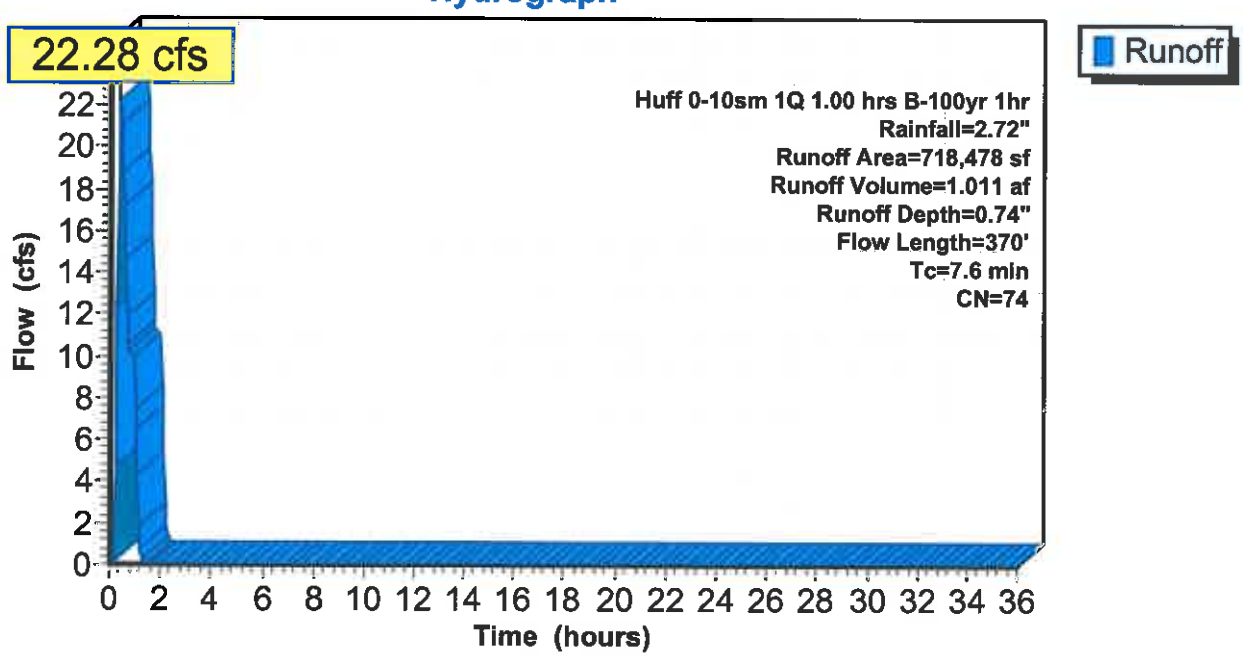
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 1.00 hrs B-100yr 1hr Rainfall=2.72"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Runoff = 15.06 cfs @ 0.83 hrs, Volume= 1.800 af, Depth= 1.31"

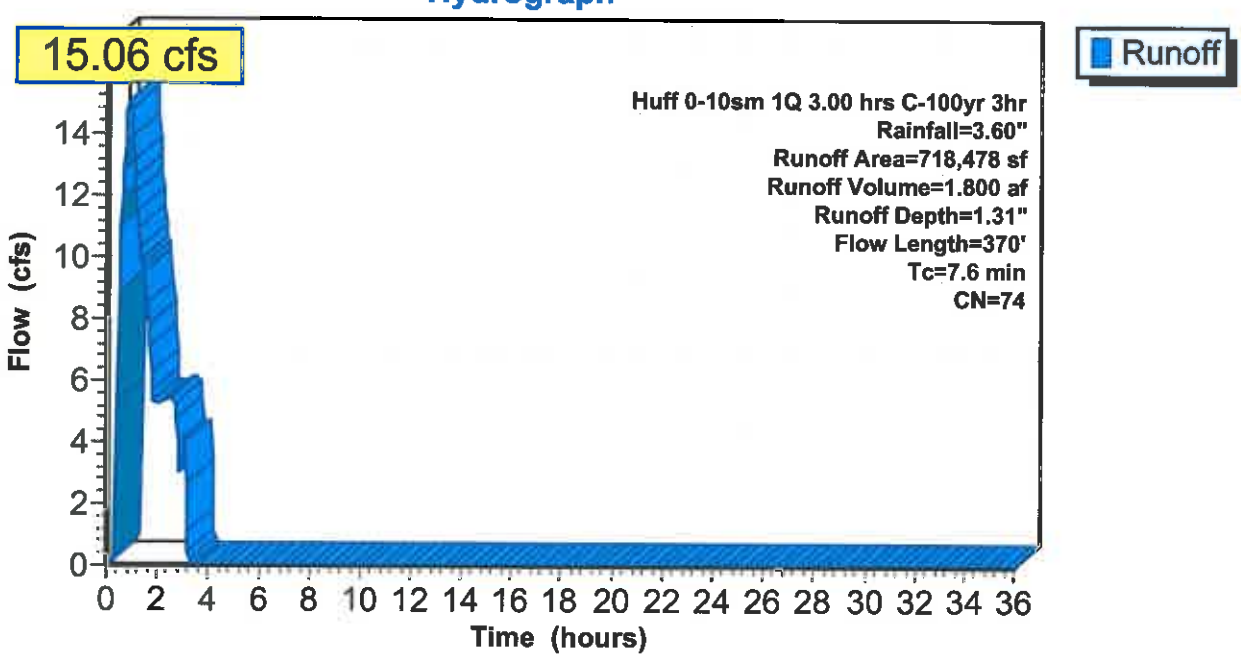
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 3.00 hrs C-100yr 3hr Rainfall=3.60"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Runoff = 10.71 cfs @ 1.53 hrs, Volume= 2.522 af, Depth= 1.83"

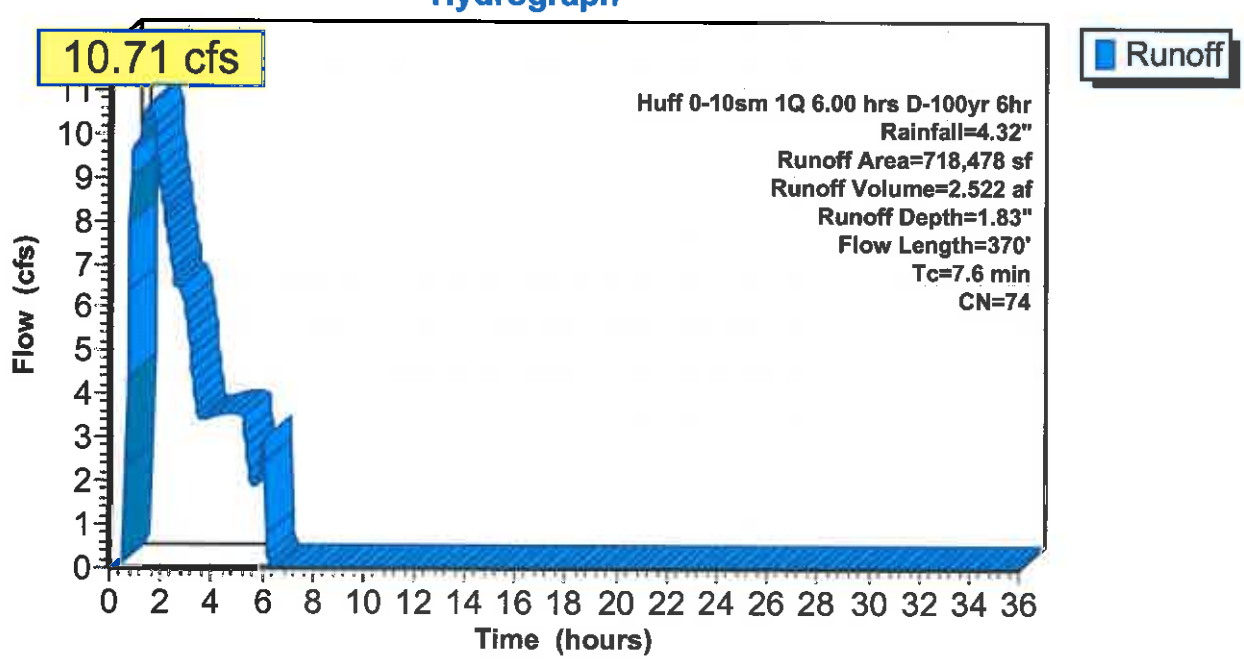
Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 1Q 6.00 hrs D-100yr 6hr Rainfall=4.32"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

Hydrograph



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

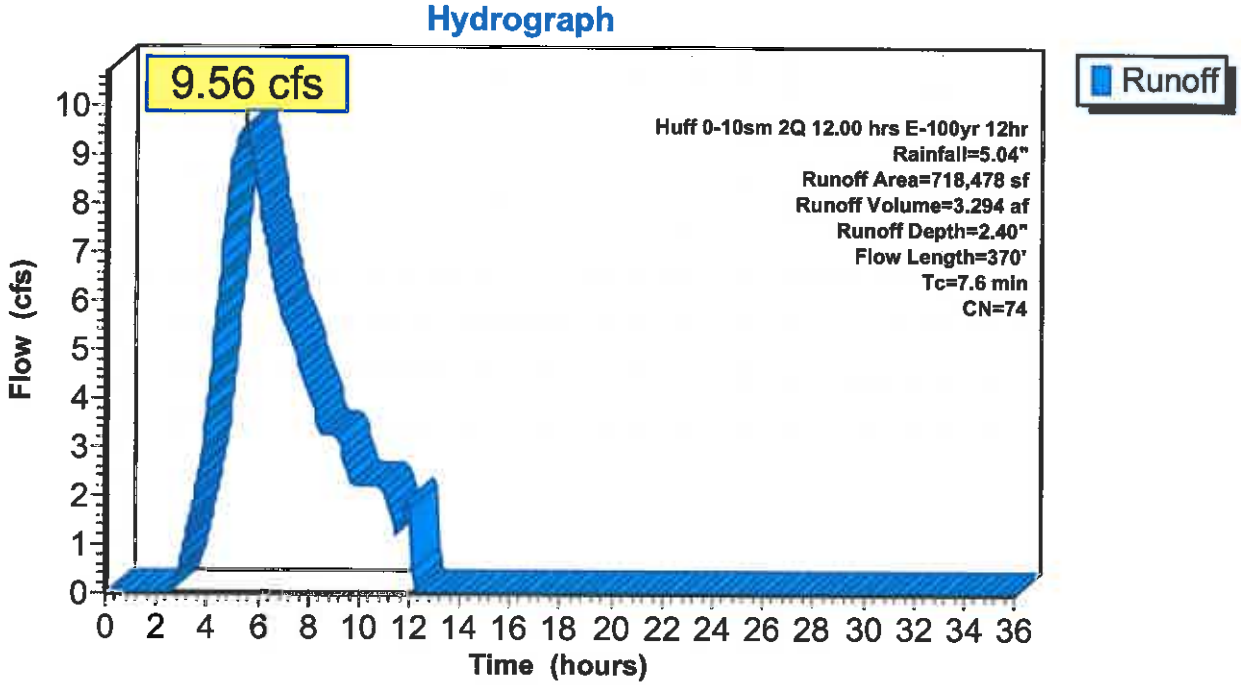
Runoff = 9.56 cfs @ 5.47 hrs, Volume= 3.294 af, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 2Q 12.00 hrs E-100yr 12hr Rainfall=5.04"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed



Summary for Subcatchment 16.50 ac: Windy Knoll Estates - Proposed

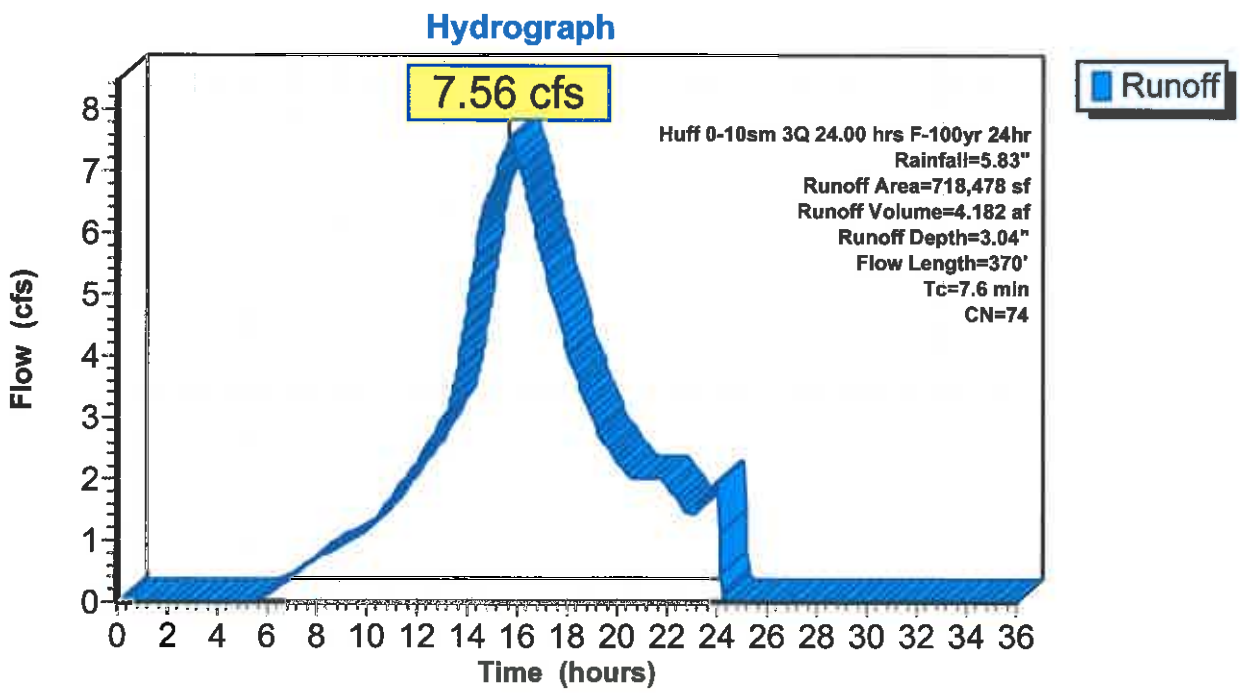
Runoff = 7.56 cfs @ 15.70 hrs, Volume= 4.182 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Huff 0-10sm 3Q 24.00 hrs F-100yr 24hr Rainfall=5.83"

Area (sf)	CN	Description
14,375	98	Roofs, HSG C
3,223	98	Paved parking, HSG C
38,115	89	Gravel roads, HSG C
662,765	72	Woods/grass comb., Good, HSG C
718,478	74	Weighted Average
700,880		97.55% Pervious Area
17,598		2.45% Impervious Area

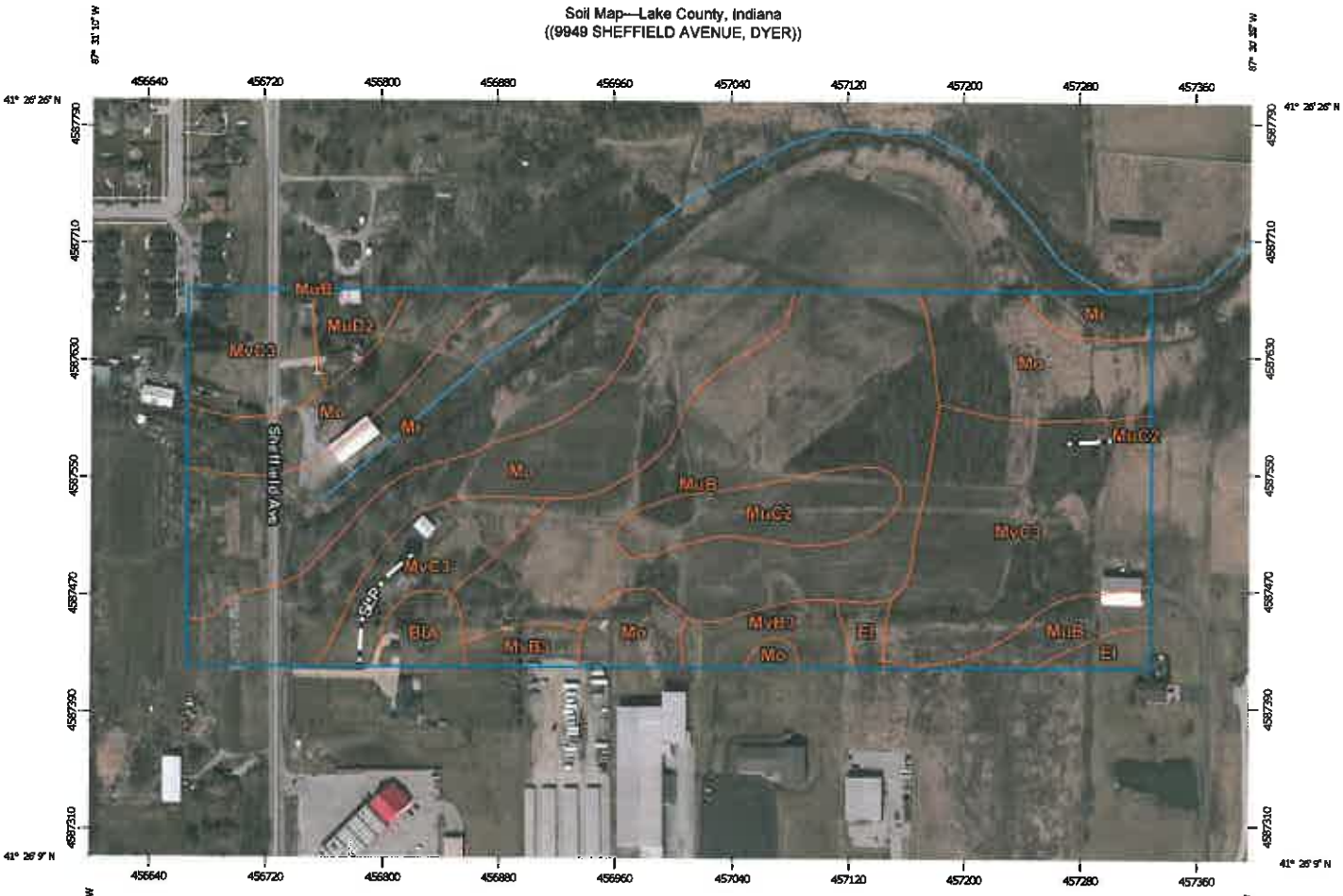
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	100	0.0570	0.52		**Sheet Flow, Sheet Flow** Cultivated: Residue<=20% n= 0.060 P2= 3.00"
4.4	270	0.0415	1.02		**Shallow Concentrated Flow, Shallow Concentrated Flow** Woodland Kv= 5.0 fps
7.6	370	Total			

Subcatchment 16.50 ac: Windy Knoll Estates - Proposed



HYDROLOGIC SOIL GROUPS

Soil Map—Lake County, Indiana
((9949 SHEFFIELD AVENUE, DYER))



Map Scale: 1:3,640 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lake County, Indiana
Survey Area Data: Version 16, Sep 9, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 13, 2012—Mar 28, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Lake County, Indiana (IN089)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BlA	Blount silt loam, Lake Michigan Lobe, 0 to 2 percent slopes	0.6	1.5%
El	Elliott silt loam, 0 to 2 percent slopes	0.7	1.6%
Mo	Milford silt loam, overwash	11.1	26.2%
Mr	Milford silty clay loam, 0 to 2 percent slopes	6.6	15.7%
MuB	Morley silt loam, 2 to 6 percent slopes	10.0	23.7%
MuC2	Morley silt loam, 6 to 12 percent slopes, eroded	2.0	4.6%
MuD2	Morley silt loam, 12 to 18 percent slopes, eroded	0.7	1.6%
MvB3	Morley silty clay loam, 2 to 6 percent slopes, severely eroded	1.5	3.5%
MvC3	Morley silty clay loam, 6 to 12 percent slopes, severely eroded	9.2	21.7%
Totals for Area of Interest		**42.3**	**100.0%**

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 West Higgins Road Suite 600 Rosemont, Illinois 60018 TEL (847) 823-0500 FAX (847) 823-0520

October 26, 2015

Jim Nichols
9949 Sheffield Avenue
Dyer, Indiana 46311

Attention: Jim Nichols

Subject: Wetland Assessment of the 9949 Sheffield Avenue Project Study Area Located in Dyer, Lake County, Indiana
(CBBEL Project No. 150549.00000)

Dear Mr. Nichols:

On October 21, 2015, Christopher B. Burke Engineering, Ltd. (CBBEL) completed a wetland assessment of the study area in Dyer, Indiana. Applying the methodology described within the U.S. Army Corps of Engineers (USACE) Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (August 2010), two wetland areas and one waters of the U.S. were identified, flagged and located with a hand-held GPS unit at the time of the site investigation. An aerial photograph illustrating the delineation of these areas is included as Exhibit 6. We understand that the flagged wetlands and waters of the U.S. boundaries will be field surveyed by your crews. Once the survey is completed, CBBEL staff will review the survey for accuracy.

The USACE regulates the discharge of dredged or fill material into jurisdictional Waters of the U.S. and wetland areas under Section 404 of the Clean Water Act. In our opinion, Wetland 1 is hydrologically connected to a waters of the U.S. known as Bull Run, which exists outside the study area to the north. Therefore, Wetland 1 will likely be considered a waters of the U.S. and will likely be subject to federal regulation. Wetland 2, however, appears to be isolated from Wetland 1 and does not have an observable connection to the floodplain of Bull Run. Our opinion is based on a review of available mapping resources, recent aerial photography, and observations gathered from our field investigation. As part of the USACE permit application, we recommend submitting a request to the USACE for a written jurisdictional determination to confirm our opinion.

The attached report describes the identified wetlands and waters of the U.S. and presents the methodology and reference material used to assist in the assessment. USACE data forms are also included. This assessment is based on field conditions at the time of the CBBEL site visit and our understanding of current federal, state and local regulations. An evaluation of historic site conditions was not performed.

Please contact our office should you have any additional questions or if we can be of further assistance.

Sincerely,

Travis Kessler

Travis Kessler, PWS
Senior Environmental Resources Specialist

WETLAND/WATERS OF THE U.S. ASSESSMENT REPORT
JIM NICHOLS - 9949 SHEFFIELD AVENUE
DYER, LAKE COUNTY, INDIANA
CBBEL Project No. 150549.00000

WETLAND DELINEATION

On October 21, 2015, Christopher B. Burke Engineering, Ltd. (CBBEL) completed a wetland/waters of the U.S. assessment of the study area, located to the east of Sheffield Avenue in Dyer, Lake County, Indiana, (Exhibit 1) to determine the presence and extent of wetlands and waters of the U.S. within the study area. This wetland/waters of the U.S. assessment report documents our findings. Two wetlands and one waters of the U.S. were identified and flagged according to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (August 2010). The approximate location of the flagged boundaries is shown on Exhibit 6. Representative site photographs are included on Exhibit 7. The Midwest Region Wetland Determination Data Forms, required by USACE, are also included.

METHODOLOGY

The Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (August 2010), identifies technical criteria required for wetland identification. The three essential characteristics of a jurisdictional wetland are hydrophytic vegetation, hydric soils and wetland hydrology as described below:

Hydrophytic Vegetation: The hydrophytic vegetation criterion is based on a separation of plants into five basic groups:

(1) Obligate wetland plants (OBL) almost always occur (estimated probability >99%) in wetlands under natural conditions;

(2) Facultative wetland plants (FACW) usually occur in wetlands (estimated probability 67-99%), but occasionally are found in non-wetlands;

(3) Facultative plants (FAC) are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%);

(4) Facultative upland plants (FACU) usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands; and

(5) Obligate upland plants (UPL) almost always occur (estimated probability >99%) in non-wetlands under natural conditions.

Four procedures completed in the following order are used to determine if hydrophytic vegetation is present:

1) Rapid Test: The Rapid Test for hydrophytic vegetation is met if all dominant species across all strata are OBL or FACW, or a combination of the two based on a visual assessment.

2) Dominance Test: Using the 50/20 Rule, if greater than 50% of the plants present are FAC, FACW, or OBL, the subject area meets the hydrophytic vegetation criterion.

3) Prevalence Index: Each plant species in a sampling plot is assigned a numeric value (OBL=1; FACW=2; FAC=3; FACU=4; UPL=5). Based on the sampling data, the absolute cover is calculated for each species in each stratum and using the specified formula, if the Prevalence Index is 3 or less, hydrophytic vegetation is present.

4) Morphological Adaptations: Various species may develop physical characteristics after growing in wetland areas such as multi-stemmed trunks, shallow roots and buttressed stems. Hydrophytic vegetation is present if an adaptation is observed in more than 50% of FACU species growing in an area that contains hydric soil and wetland hydrology.

Hydric Soils: Hydric soils are defined in the manual as "soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions in the upper part." Field indicators of hydric soil are found in the NTCHS Field Indicators of Hydric Soils in the United States (USDA Natural Resources Conservation Service 2006b or current version).

Wetland Hydrology: The wetland hydrology criterion is often the most difficult to determine. Typically, the presence of water for a portion of the growing season creates anaerobic conditions. Anaerobic conditions lead to the prevalence of wetland plants. Morphological adaptations of plants, driftlines and watermarks are examples of wetland hydrology field indicators.

RESULTS AND DISCUSSION

STUDY AREA

The study area consists of a +/- 16 acre area located to the north of 101st Avenue, south of 98th Avenue, east of Sheffield Avenue, and west of private land in Dyer, Indiana. The study area consisted of a single family residence, upland, two wetlands, and one waters of the U.S. named Bull Run. The following is a brief description of the identified wetland and waters of the U.S. with a list of the dominant plant species observed and their corresponding wetland indicator categories. A coefficient of conservatism (*C*-value) is also included for each plant species. *C*-values were established by Swink and Wilhelm (1999) to quantify a wetland's native attribute for comparative purposes.

Each plant species is rated on a scale of 0 to 10, 0-representing non-native or noxious species commonly found in a variety of habitats, and 10 representing plants found only under specific ecological conditions. The *C*-values of plants found in wetland areas can

give some insight as to the overall quality or value of the wetland. Wetlands containing an abundance of plants with a low *C*-value suggest that these wetlands have been disturbed in the past. Wetlands containing an abundance of plants with a high *C*-value suggest that specific ecological conditions necessary for their survival are intact thus disturbance is probably minimal and the wetland maintains at least some of its original integrity.

Waters of the U.S. are defined as the ordinary high water mark in non-tidal waters, provided the jurisdiction is not extended by the presence of wetlands. The term "ordinary high water mark" (OHWM) refers to the line established by the fluctuations of water. These fluctuations can be indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris.

IDENTIFIED WETLAND AND WATERS OF THE U.S. AREAS

The following is a brief description of the identified wetlands and waters of the U.S. with a list of the dominant plant species observed in each wetland.

Wetland 1

Wetland 1, characterized at data point 1A, is an emergent wetland located in the east portion of the study area within the floodplain of Bull Run, a waters of the U.S. Dominant vegetation identified within the wetland area consists of reed canarygrass (*Phalaris arundinacea*), wool grass (*Scirpus cyperinus*), and prairie cinquefoil (*Potentilla arguta*). Positive wetland hydrology was indicated by the presence of saturated soils and drainage patterns within the wetland. Soils within the wetland were mapped as Morley silt loam, eroded. Morley silt loam is classified as a non-hydric soil. The observed soil profile within the wetland exhibited a low chroma matrix and the presence of redoximorphic concentrations which is indicative of hydric soils.

The following plant list was collected within the wetland area:

FLORISTIC QUALITY DATA	Native	14	82.4%	Adventive	3	17.6%
14 NATIVE SPECIES	Tree	2	11.8%	Tree	0	0.0%
17 Total Species	Shrub	2	11.8%	Shrub	0	0.0%
3.2 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
2.6 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
12.0 NATIVE FQI	P-Forb	7	41.2%	P-Forb	1	5.9%
10.9 W/Adventives	B-Forb	0	0.0%	B-Forb	0	0.0%
-2.1 NATIVE MEAN W	A-Forb	1	5.9%	A-Forb	0	0.0%
-2.2 W/Adventives	P-Grass	1	5.9%	P-Grass	2	11.8%
AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	1	5.9%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	0	0.0%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ASCINC	4	Asclepias incarnata	-5	OBL	Nt P-Forb	SWAMP MILKWEED
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
JUNTOR	4	Juncus torreyi	-3	FACW	Nt P-Forb	TORREY'S RUSH
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLPEN	0	Polygonum pensylvanicum	-4	FACW+	Nt A-Forb	PINKWEED
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POTARU	9	Potentilla arguta	4	FACU-	Nt P-Forb	PRAIRIE CINQUEFOIL
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
SALNIG	4	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW

SCICYP	6	Scirpus cyperinus	-5	OBL	Nt	P-Sedge	WOOL GRASS
SOLALT	1	Solidago altissima	3	FACU	Nt	P-Forb	TALL GOLDENROD
SOLGRG	4	Solidago graminifolia	-2	FACW-	Nt	P-Forb	COMMON GRASS-LEAVED GOLDENROD
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt	P-Grass	PRAIRIE CORD GRASS
TYPLAT	1	Typha latifolia	-5	OBL	Nt	P-Forb	BROAD-LEAVED CATTAIL

Wetland 2

Wetland 2, characterized at data point 2A, is located to the west of Wetland 1 in the east portion of the study area. Dominant vegetation identified within the wetland area consists of narrow-leaved cattail (*Typha angustifolia*) and reed canarygrass. Positive wetland hydrology was indicated by saturated soils and drainage patterns within the wetland. Soils within the wetland were mapped as Morley silty clay loam, severely eroded. Morley silty clay loam is classified as a non-hydric soil. The observed soil profile within the wetland exhibited a low chroma matrix and the presence of redoximorphic concentrations which is indicative of hydric soils.

The following plant list was collected within the wetland area:

FLORISTIC QUALITY DATA	Native	9	75.0%	Adventive	3	25.0%
9 NATIVE SPECIES	Tree	0	0.0%	Tree	0	0.0%
12 Total Species	Shrub	1	8.3%	Shrub	0	0.0%
3.1 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
2.3 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
9.3 NATIVE FQI	P-Forb	7	58.3%	P-Forb	1	8.3%
8.1 W/Adventives	B-Forb	0	0.0%	B-Forb	0	0.0%
-1.7 NATIVE MEAN W	A-Forb	0	0.0%	A-Forb	0	0.0%
-1.4 W/Adventives	P-Grass	0	0.0%	P-Grass	2	16.7%
AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	1	8.3%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	0	0.0%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY		COMMON NAME
ASTSIS	3	Aster simplex	-5	OBL	Nt	P-Forb	PANICLED ASTER
EPICOL	3	Epilobium coloratum	-5	OBL	Nt	P-Forb	CINNAMON WILLOW HERB
FESELA	0	FESTUCA ELATIOR	2	FACU+	Ad	P-Grass	TALL FESCUE
JUNDUD	4	Juncus dudleyi	0	[FAC]	Nt	P-Forb	DUDLEY'S RUSH
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad	P-Forb	PURPLE LOOSESTRIFE
POAPRA	0	POA PRATENSIS	1	FAC-	Ad	P-Grass	KENTUCKY BLUE GRASS
POTARU	9	Potentilla arguta	4	FACU-	Nt	P-Forb	PRAIRIE CINQUEFOIL
PRUVLA	0	Prunella vulgaris lanceolata	3	[FACU]	Nt	P-Forb	SELF HEAL
SALINT	1	Salix interior	-5	OBL	Nt	Shrub	SANDBAR WILLOW
SCICYP	6	Scirpus cyperinus	-5	OBL	Nt	P-Sedge	WOOL GRASS
SOLALT	1	Solidago altissima	3	FACU	Nt	P-Forb	TALL GOLDENROD
TYPANG	1	Typha angustifolia	-5	OBL	Nt	P-Forb	NARROW-LEAVED CATTAIL

Drainageway (Bull Run)

Bull Run, a waters of the U.S., characterized at data point 3A, consists of an approximate 10-foot wide mostly unvegetated channel and crosses the western portion of the study area in a northeast direction. Portions of the channel were vegetated with reed canarygrass, rice cutgrass (*Leersia oryzoides*), water pepper (*Persicaria hydropiper*), bittersweet nightshade (*Solanum dulcamara*), and river bulrush (*Schoenoplectus fluviatilis*). Dominant vegetation along the banks of the channel consisted of silver maple (*Acer saccharinum*), tartarian honeysuckle (*Lonicera tatarica*), and pale dogwood (*Cornus obliqua*). The ordinary high water mark was determined by a defined scour line, deeply incised banks, and exposed roots. The channel exhibited a silty muck substrate and did not contain flowing water during the field investigation.

REFERENCE MATERIALS

The following reference materials were reviewed and used to assist in the field assessment. They are included as Exhibits 1-5.

LOCATION

The study area consists of approximate 16 acre area located to the north of 101st Avenue, south of 98th Avenue, east of Sheffield Avenue, and west of private land in Dyer, Indiana, as shown on Exhibit 1. Geographically, the study area is located in Section 36, Township 35 North, Range 10, West of the Second Principal Meridian. The study area is centered at approximately Latitude 41.438761, Longitude -87.514485 (NAD83 Datum).

NATIONAL WETLAND INVENTORY

The National Wetland Inventory map (NWI) for the Dyer Quadrangle (1983), as shown on Exhibit 2, indicates that wetland is mapped within the study area. The NWI serves only as a large-scale guide and actual wetland locations and types often vary from that mapped. The following wetland type is mapped within the study area:

PEM1Cd - Palustrine, Emergent, Persistent, Seasonally Flooded, Partially Drained/Ditched

SOIL SURVEY

The Soil Survey of Lake County, Indiana (2001), as shown on Exhibit 3, was reviewed to determine the location of hydric soils within the study area. Mapped hydric soil can be indicative of wetland conditions. The following soils are mapped within the study area:

Mo	-	Milford silt loam, overwash	- hydric
Mr	-	Milford silty clay loam	- hydric
MuB	-	Morley silt loam	
MuC2/D2	-	Morely silt loam, eroded	
MvC3	-	Morley silt loam, severely eroded	

USGS TOPOGRAPHIC SURVEY

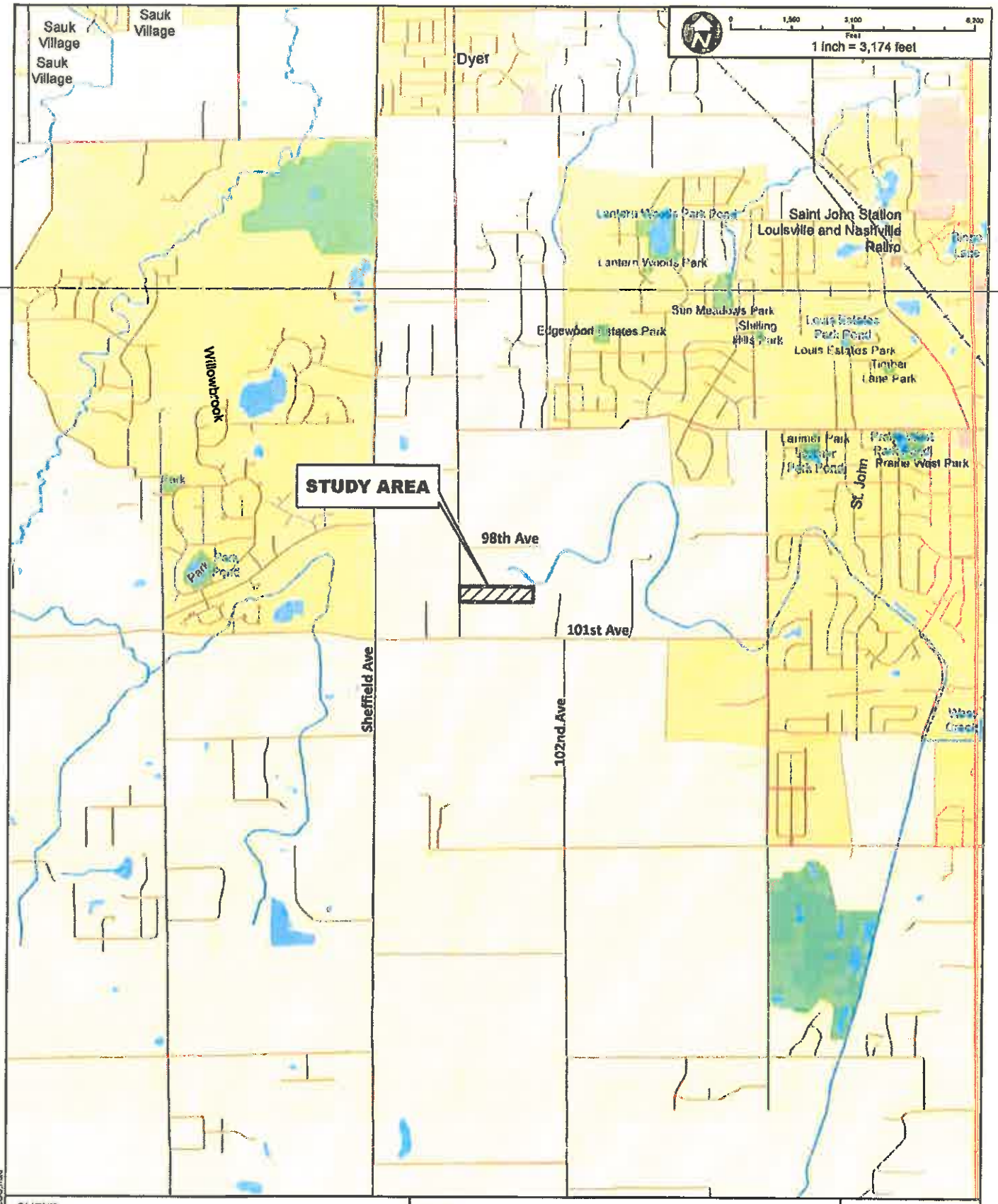
The USGS Topographic survey for the Dyer Quadrangle (1993), as shown on Exhibit 4, was reviewed to determine local watershed and possible drainage patterns. The results of the field investigation indicate that runoff within the study area drains north into Bull Run, a waters of the U.S.

FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map (FIRM) for Lake County, Indiana and Incorporated Areas, Map Panel Number 18089C0210 E and 18089C0220 E, effective January 18, 2012 was reviewed to determine the location of regulatory floodplain within the property

(Exhibit 5). Mapped floodplain can be indicative of wetland hydrology. The FIRM map indicates the study area is not located within mapped 100-year regulatory floodplain.

TDK
N:\INDIANA\150549\Env\Docs\wetland delineation_102815.doc



CLIENT:

JIM NICHOLS

TITLE:

LOCATION MAP

CBBEL #	15-0549
DATE:	10/8/15

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DWN.			SCALE:	1"=3,174'
CHKD.			PLOT DATE:	10/26/2015
FILE NAME:	150549_LOC			

EXH 1

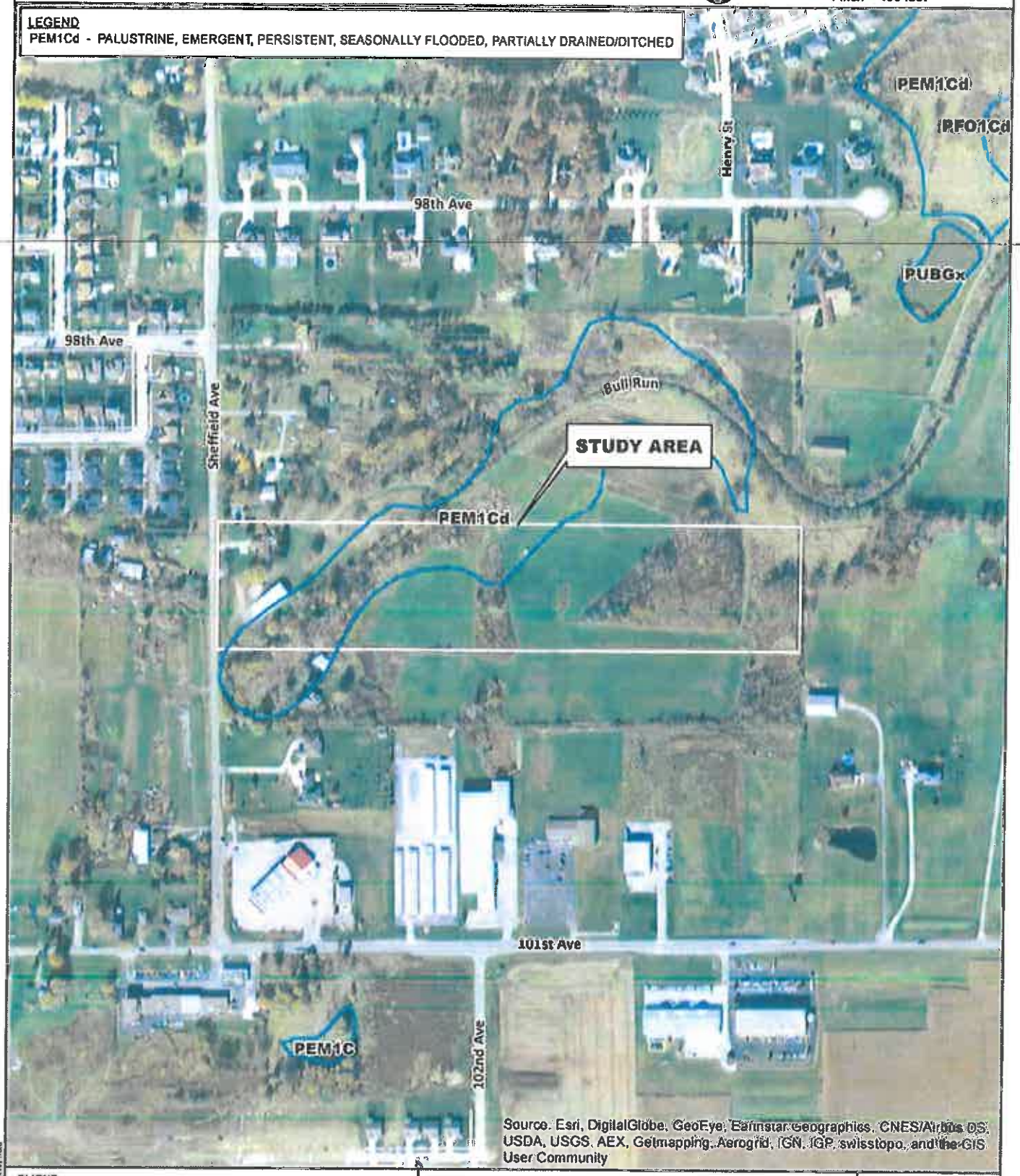
P:\JIM NICHOLS\15\0549\150549_LOC.mxd

NOTE: TAKEN FROM THE NATIONAL WETLAND INVENTORY(NWI), DYER QUADRANGLE(1983)

1 inch = 400 feet

LEGEND

PEM1Cd - PALUSTRINE, EMERGENT, PERSISTENT, SEASONALLY FLOODED, PARTIALLY DRAINED/DITCHED



CLIENT: **JIM NICHOLS**

TITLE: **NATIONAL WETLAND INVENTORY**

CBBEL # 15-0549

DATE: 10/8/15

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

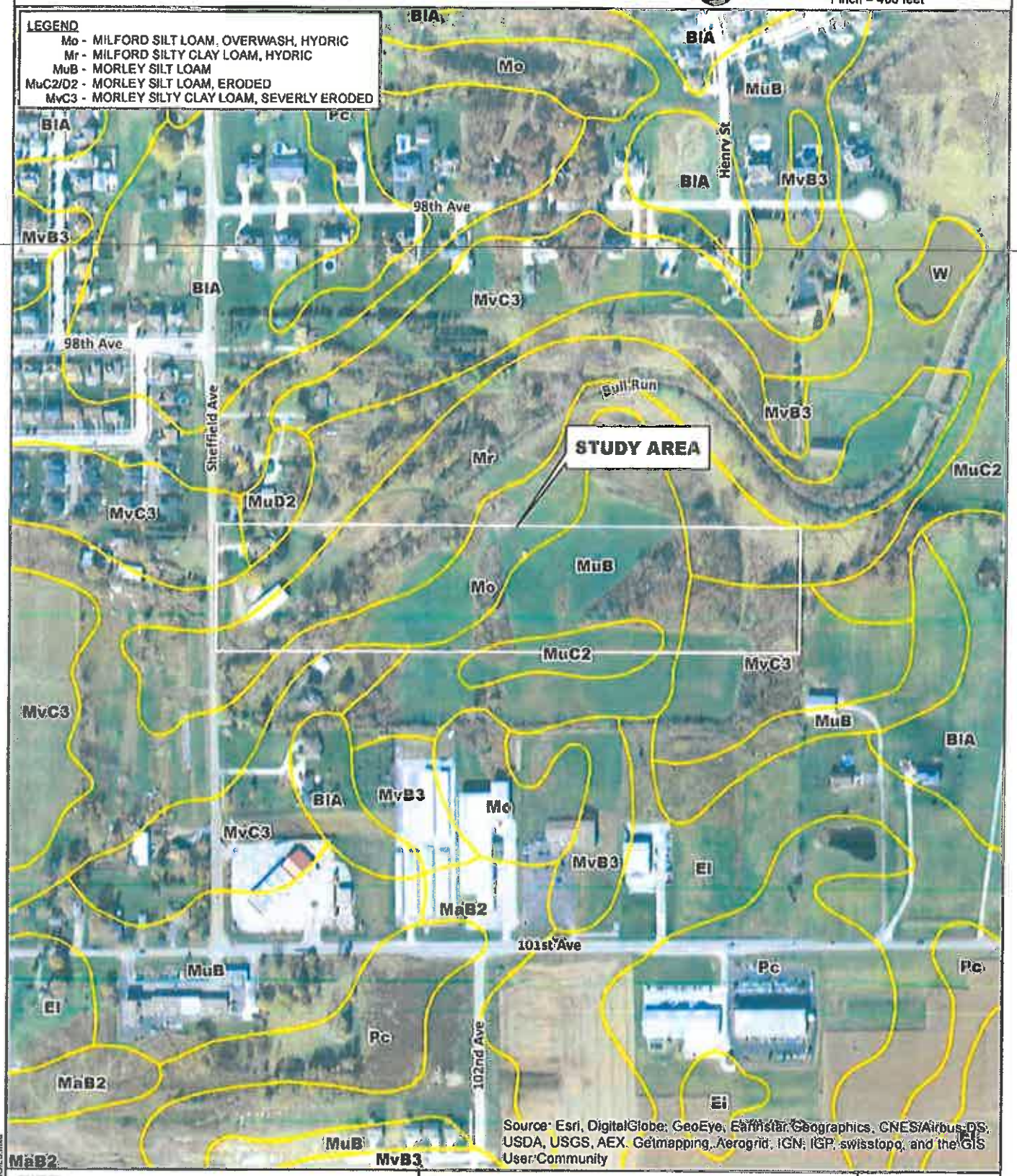
DWN.			SCALE:	1"= 400'
CHKD.			PLOT DATE:	10/28/2015
FILE NAME:	150549_NWI			

EXH 2

P:\JIM NICHOLS\15150549\150549_NWI.mxd

NOTE: TAKEN FROM THE SOIL SURVEY OF LAKE COUNTY, INDIANA(2001)

1 inch = 400 feet



CLIENT: **JIM NICHOLS**

TITLE: **SOIL SURVEY**

CBBEL # 15-0549
DATE: 10/8/15

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DWN.			SCALE:	1 " = 400 '
CHKD.			PLOT DATE:	10/26/2015
FILE NAME:	150549_SOILS			

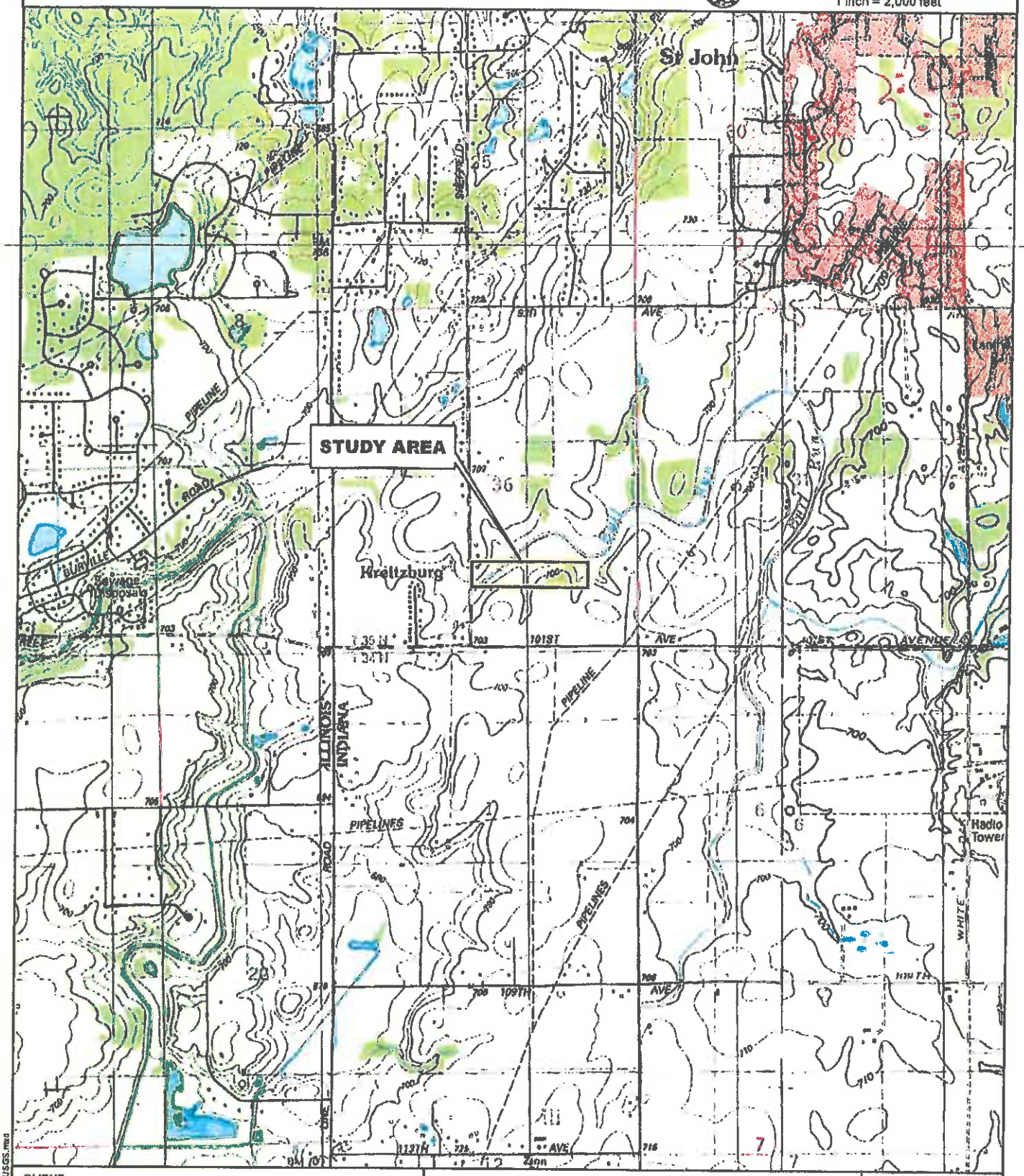
EXH 3

P:\JIM NICHOLS\15054915\0549_SOILS.mxd

NOTE: TAKEN FROM THE UNITED STATES GEOLOGICAL SURVEY(USGS), DYER QUADRANGLE(1993)

0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet



CLIENT:

JIM NICHOLS

TITLE:

UNITED STATES GEOLOGICAL SURVEY

CBBEL #	15-0549
DATE	10/6/15

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (647) 823-0500

DWN.			SCALE:	1" = 2,000'
CHKD.			PLOT DATE:	10/26/2015
FILE NAME:	150549_USGS			

EXH 4

P:\JIM NICHOLS\15550\150549_USGS.mxd

NOTE: TAKEN FROM THE FLOOD INSURANCE RATE MAP(FIRM), LAKE COUNTY AND INCORPORATED AREAS, INDIANA, MAP NUMBERS 18089C0210E AND18089C0220E, EFFECTIVE DATE: JANUARY 18, 2012

0 200 400 800 Feet

1 inch = 400 feet

CLIENT	TITLE	
JIM NICHOLS	**FLOOD INSURANCE RATE MAP**	CBBEL # 15-0549 DATE: 10/6/15

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DWN.			SCALE:	1 "= 400 '
CHKD.			PLOT DATE:	10/26/2015
FILE NAME:	150549_FIRM			

EXH 5

P:\JIM NICHOLS\15150549\150549_FIRM.mxd

CHRISTOPHER B. BURKE ENGINEERING LTD
9575 West Higgins Road, Suite 850
Rosemont, Illinois 60018
(847) 823 0520

JIM NICHOLS

APPROXIMATE
WETLAND DELINEATION

EXH 6

Wetland 1 – Facing north from north portion of wetland

Wetland 1 – Facing east from south portion of wetland

Wetland 2 – Facing northwest

Waters of the U.S. (Bull Run) – Facing southwest

Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
847-823-0500

CLIENT: Jim Nichols	PROJECT NO.: 150549.00000	10/23/15
9949 Sheffield Avenue, Dyer, Lake County, IL		EXHIBIT: 7

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 1A

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silt loam, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0 = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	40	Yes	FACW
2. *Potentilla arguta*	35	Yes	FACW
3. *Scirpus cyperinus*	15	No	OBL
4. *Poa pratensis*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
50%: ___ 20%: ___	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ___ 20%: ___	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	75	x 2 =	150
FAC species	10	x 3 =	30
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	100 (A)		195 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	85	10YR 4/6	15	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 4

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 1B

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silt loam, eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

~~Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)~~

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0 = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. *Solidago altissima*	40	Yes	FACU
2. *Poa pratensis*	30	Yes	FAC
3. *Festuca eliator*	20	Yes	FACU
4. *Potentilla arguta*	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
50%: ___ 20%: ___	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ___ 20%: ___	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	60	x 4 =	240
UPL species		x 5 =	
Column Totals:	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): _____

Water Table Present? Yes ____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 2A

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silty clay loam, severly eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

~~Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)~~

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
50%: ____ 20%: ____	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Salix interior*	10	Yes	OBL
2.			
3.			
4.			
5.			
50%: ____ 20%: ____	10 = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Typha angustifolia*	30	Yes	OBL
3. *Festuca eliator*	20	Yes	FACU
4. *Juncus dudleyi*	10	No	FAC
5. *Solidago altissima*	10	No	FACU
6.			
7.			
8.			
9.			
10.			
50%: ____ 20%: ____	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ____ 20%: ____	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species		x 5 =	
Column Totals:	100 (A)		240 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	90	10YR 4/6	10	C	M	silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 6

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 2B

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silty clay loam, severly eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

~~Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)~~

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	0	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Solidago altissima*	45	Yes	FACU
2. *Festuca eliator*	35	Yes	FACU
3. *Poa pratensis*	10	No	FAC
4. *Rubus occidentalis*	10	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
50%: ___ 20%: ___	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ___ 20%: ___	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	10	x 3 =	30
FACU species	80	x 4 =	320
UPL species	10	x 5 =	50
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/4	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): _____

Water Table Present? Yes ____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 3A

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silty clay loam, severly eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	Is the Sampled Area within a Wetland? Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks:
Sample point is located within the channel of Bull Run.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
50%: ____ 20%: ____	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1.			
2.			
3.			
4.			
5.			
50%: ____ 20%: ____	0 = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. *Persicaria hydropiper*	15	Yes	OBL
2. *Phalaris arundinacea*	10	Yes	FACW
3. *Leersia oryzoides*	5	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
50%: ____ 20%: ____	30 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ____ 20%: ____	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	10	x 2 =	20
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	30 (A)		40 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	95	10YR 4/6	5	C	M	muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ✓ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ✓ Water Marks (B1)
- ✓ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ✓ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): surface

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 9949 Sheffield Avenue City/County: Dyer Lake Sampling Date: 10/21/2015

Applicant/Owner: Jim Nichols State: Indiana Sampling Point: 3B

Investigator(s): T. Kessler and T. Kehoe Section, Township, Range: Section 36, T35N, R10W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex

Slope (%): 1 Lat: 41.438761° Long: -87.514485° Datum: NAD83

Soil Map Unit Name: Milford silty clay loam, severly eroded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

~~Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)~~

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	Is the Sampled Area within a Wetland? Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:
Sample point exists along the bank of Bull Run.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	40	Yes	FACW
2.			
3.			
4.			
5.			
50%: ___ 20%: ___	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Lonicera tatarica*	20	Yes	FACU
2. *Cornus obliqua*	20	Yes	FACW
3.			
4.			
5.			
50%: ___ 20%: ___	40	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	45	Yes	FACW
2. *Cirsium arvense*	35	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10			
50%: ___ 20%: ___	80	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
50%: ___ 20%: ___	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species	105	x 2 =	210
FAC species		x 3 =	
FACU species	55	x 4 =	220
UPL species		x 5 =	
Column Totals:	160 (A)		430 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2	100					silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

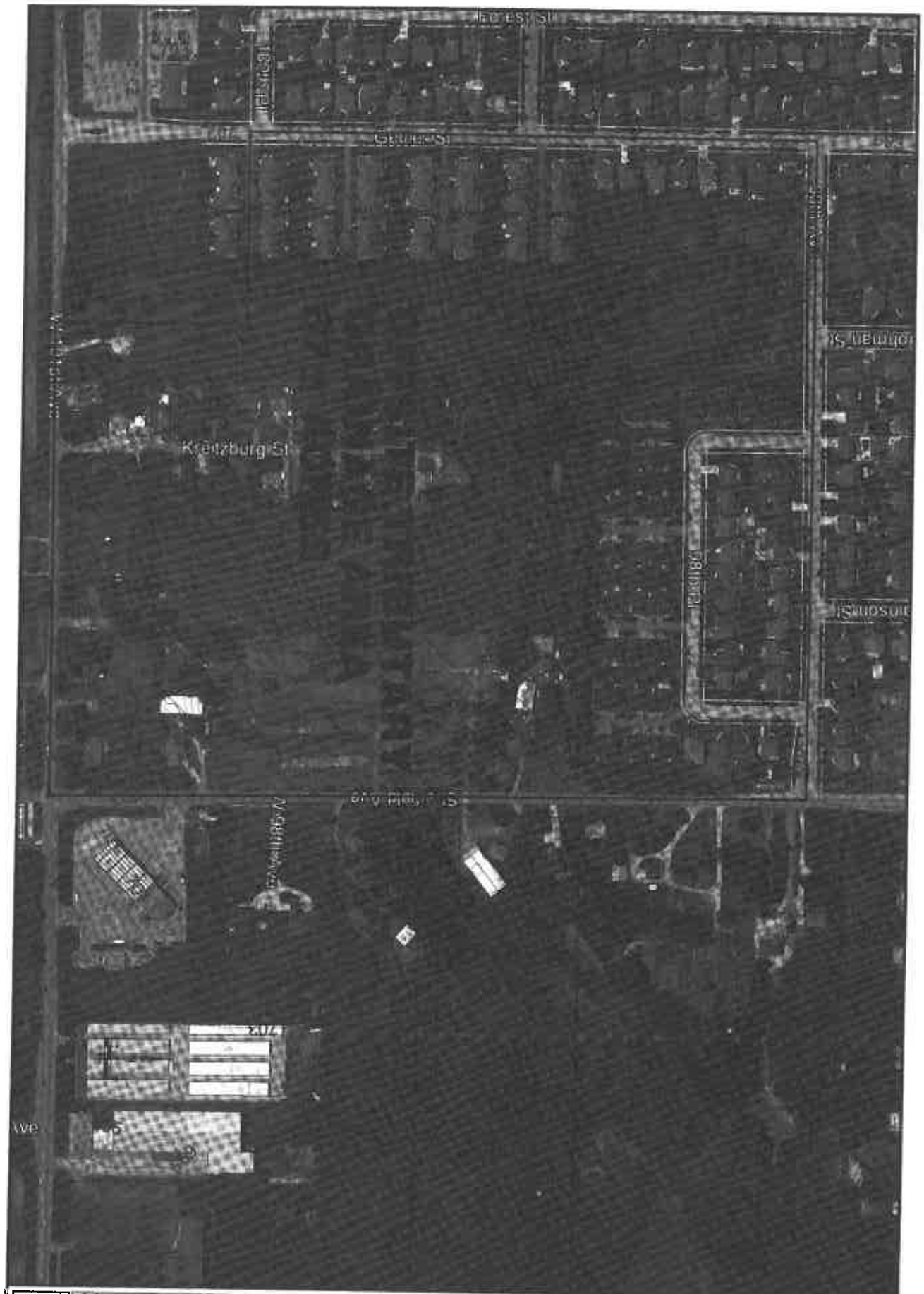
Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



1 of 1	DRAWN BY: T.C.	WINDY KNOLL ESTATES	LANDMARK	DATE	REVISIONS	REV.
15-03-004	DESIGNED BY: B.H.	9949 SHEFFIELD AVENUE, DYER, IN		4/29/16	OFFSITE TRIBUTARY EXHIBIT	B.H.
SHEET	CHECKED BY: M.L.	OFFSITE TRIBUTARY EXHIBIT				

PRIMARY PLAT

FOR

WINDY KNOLL ESTATES

9949 SHEFFIELD AVENUE
DYER, INDIANA

HOLEY MOLEY SAYS
" DON'T DIG BLIND "

1-800-382-5544
CALL TOLL FREE
1-800-428-5200
FOR CALLS OUTSIDE OF INDIANA

PER INDIANA STATE LAW 8-6-1997, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LEGAL DESCRIPTION

THE NORTH 600.70 FEET (EXCEPT THE EAST 292.00 FEET) OF THE NORTH HALF OF THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 28, TOWNSHIP 35 NORTH, RANGE 10 WEST OF THE SECOND PRINCIPAL MERIDIAN, IN LAKE COUNTY, INDIANA.

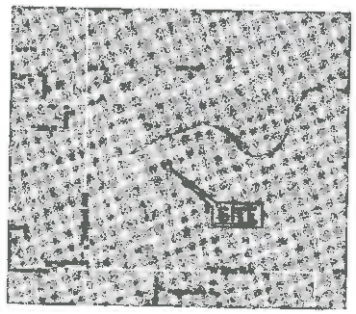
LEGEND

	EXISTING	PROPOSED
WATER MAIN	—W—	—W—
STORM SEWER	—D—	—D—
SANITARY SEWER	—S—	—S—
MANHOLE		
CATCH BASIN		
INLET		
FLARED END SECTION		
HEADWALL		
FIRE HYDRANT		
WATER VALVE		
TEMPORARY STRAW BALES		
TEMPORARY SILT FENCE		
LIGHT POLE		
TOP OF FOUNDATION	T/F= 700.00	T/F= 700.00
SPOT ELEVATION	x 600.0	x 600.0
SWALE		
OVERLAND FLOW ROUTE		

STORM SEWER — SANITARY

INDEX

1. COVER SHEET
2. PRIMARY PLAT
3. NOTES & DETAILS
4. SWPPP – (RULE 5)



VICINITY MAP

EXISTING ZONING
R3 & A1

REQUESTED ZONING
R1

TYPE OF DEVELOPMENT
SINGLE-FAMILY RESIDENTIAL

STATEMENT OF TOPOGRAPHY
GENTLY ROLLING

STORMWATER MANAGEMENT
OVERLAND FLOW

UTILITY MANAGEMENT
SEPTIC SYSTEMS
AND WELLS

GROSS LAND AREA & DENSITY
GROSS LAND AREA = 18.50± ACRES
TOTAL LOTS = 3
ACRES/LOT = 5.6

OPERATING AUTHORITY
JIM NICHOLS
9949 SHEFFIELD AVENUE
DYER, IN 46311
219-365-3742

DEVELOPER
JIM NICHOLS
9949 SHEFFIELD AVENUE
DYER, IN 46311
219-365-3742

DESIGN COMPANY
LANDMARK ENGINEERING LLC
7508 W. 103RD STREET
PALOS HILLS, IL 60465
708-599-3737

POST-CONSTRUCTION BMP COORDINATE TABLE

GRATE/ FILTER	NORTHING	EASTING
1	2254969.13	2833809.96
2	2254969.17	2833843.46
3	2255037.13	2833864.31
4	2255017.12	2833871.11
5	2255036.80	2833969.82
6	2255016.80	2833969.32
7	2255037.05	2834294.01
8	2254217.07	2834270.51
9	2254215.51	2834486.99
10	2253215.95	2834486.99
11	2254635.25	2834488.32
12	2254635.31	2834486.33
BIO-BAG		
13	2254978.68	2833772.07
14	2254985.64	2833786.53

I, THE UNDERSIGNED, STATE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DRAINAGE OF SURFACE WATERS IS NOT BE CHANGED BY THE CONSTRUCTION OF THIS PROJECT, OR THAT IF SUCH SURFACE WATER DRAINAGE WILL BE CHANGED, REASONABLE PROVISION HAS BEEN MADE FOR THE COLLECTION AND DIVERSION OF SUCH SURFACE WATERS INTO PUBLIC AREAS OR DRAINS WHICH THE DEVELOPER HAS THE RIGHT TO USE, AND THAT SUCH SURFACE WATERS WILL BE PLANNED FOR IN ACCORDANCE WITH THE GENERALLY ACCEPTED ENGINEERING PRACTICES REQUIRED BY THE COUNTY SURVEYOR ON CONTOUR, DRAINAGE, AS AMENDED FROM TIME TO TIME, SO AS TO REDUCE THE LIKELIHOOD OF DAMAGE TO THE ADJOINING PROPERTY BECAUSE OF THE CONSTRUCTION OF THIS PROJECT.

SIGNED THIS 15TH DAY OF MARCH, 2016

MARK H. SANDSTRUM
PROFESSIONAL LAND SURVEYOR
NO. 2080035004

MARK H. SANDSTRUM
2080035
PROFESSIONAL LAND SURVEYOR
STATE OF INDIANA
PALOS HILLS, ILLINOIS

RECEIVED
BY: 11 Dec
LAKE COUNTY SURVEYOR

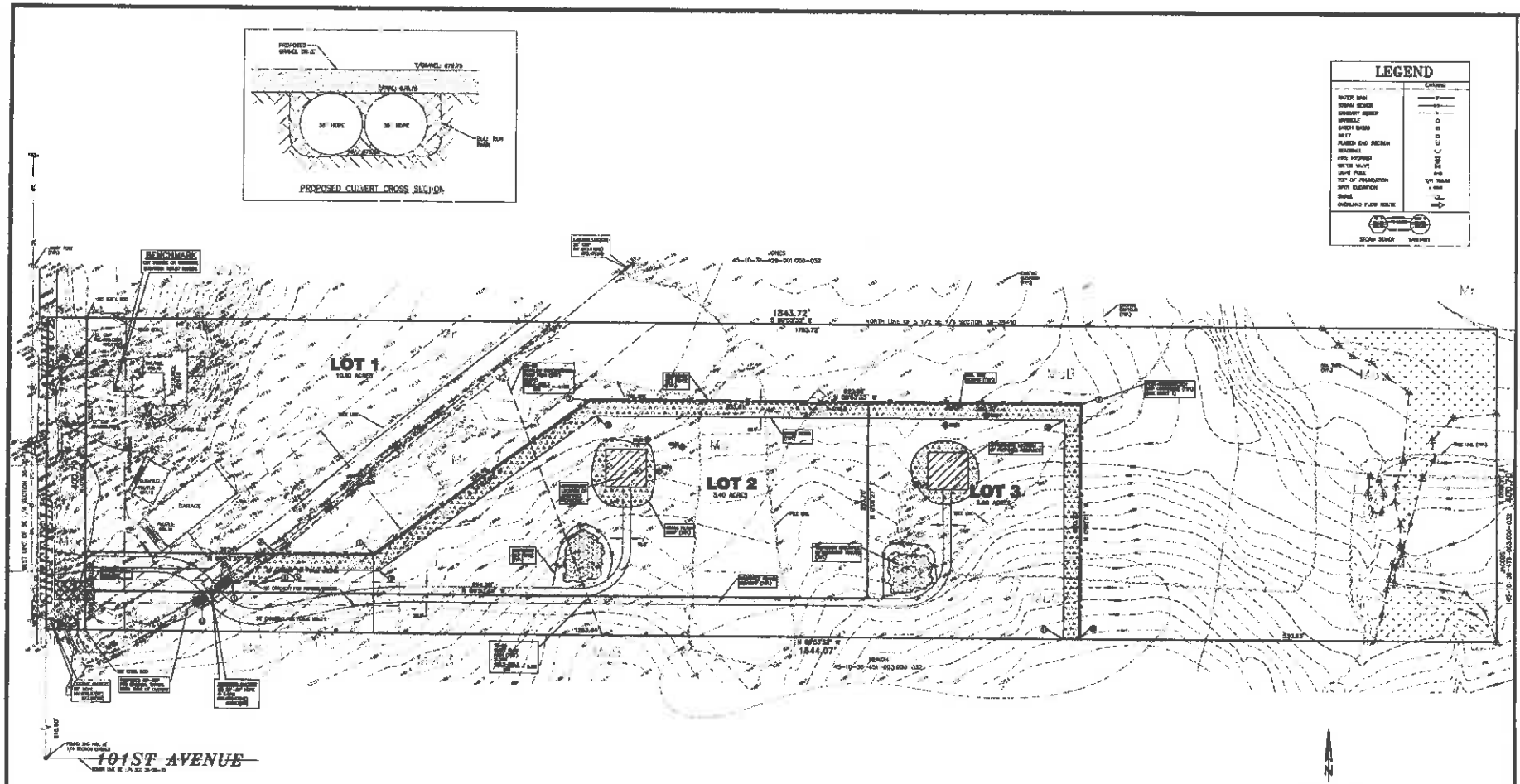
DATE	REVISIONS	REV. BY
9/4/15	PLAN COMMISSION COMMENTS	T.G.
11/19/15	UPDATE WETLANDS	T.G.
12/23/15	D.Z. COMMENTS	T.G.
1/5/16	D.Z. COMMENTS	T.G.
3/15/16	D.Z. COMMENTS	T.G.

LANDMARK
7508 W. 103RD STREET
PALOS HILLS, ILLINOIS 60465-1538
PHONE (708) 599-3737
FAX (708) 599-3737

WINDY KNOLL ESTATES
9949 SHEFFIELD AVENUE, DYER, IN
COVER SHEET

DRAWN BY: T.G.
DESIGNED BY: S.H.
CHECKED BY: M.L.

SHEET
1 of 4
13-03-004



GENERAL NOTES

1. DISTANCES ARE SHOWN IN FEET AND DECIMAL PARTS THEREOF AND BEARINGS SHOWN ARE BASED ON TRUE NORTH DETERMINED BY GPS MEASUREMENT.
2. TEMPORARY BENCHMARK CUT SQUARE ON CONCRETE CURB AS SHOWN ABOVE ELEVATION: 845.57 NAVD88
3. FLOOD HAZARD STATEMENT: THE ACCURACY OF ANY FLOOD HAZARD DATA SHOWN ON THIS REPORT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OR DURATION ON THE FEDERAL FLOOD INSURANCE RATE MAP. ALL OF THE WITHIN DESCRIBED LAND APPEARS TO LIE WITHIN SPECIAL FLOOD HAZARD ZONE "X" AS SAID TRACT PLOTS BY SCALE ON COMMUNITY-PANEL # 18089C0241E OF THE FLOOD INSURANCE RATE MAPS "OR UNINCORPORATED LAKE COUNTY (MAPS DATED JANUARY 18, 2012).
4. A PRECONSTRUCTION MEETING MUST TAKE PLACE WITH LAKE COUNTY MS4 DEPARTMENT 48 HOURS PRIOR TO CONSTRUCTION. ALSO CONTACT MS4 DEPARTMENT AT 219.755.3745.
5. DISTURBANCE OF ACRE OR MORE WILL REQUIRE SUBMISSION AND APPROVAL OF A STORM WATER POLLUTION PREVENTION PLAN (SWPP) BY THE OFFICE OF THE LAKE COUNTY SURVEYOR.
6. HOME OWNER TO MAINTAIN A MINIMUM OF 20 FEET OF LAWN AROUND THE PERIMETER OF THE HOUSE AND DRIVEWAY AS A FILTER STRIP FOR POST CONSTRUCTION WATER QUALITY BMP.
7. WETLANDS AS SHOWN ARE PER A CORPS DELINEATION DATED OCTOBER 21, 2015.
8. SHEFFIELD AVENUE TO BE IMPROVED WITH 10' PAVEMENT EAST OF THE SECTION LINE AND 24' 8" SHOULDER.

SOIL TYPES

BA - ELBURN SILT LOAM (0 TO 2 PERCENT SLOPES)
EL - ELLIOT SILT LOAM (0 TO 2 PERCENT SLOPES)
Me - MILFORD SILT LOAM OVERWASH (0 TO 2 PERCENT SLOPES)
Mr - MILFORD SILTY CLAY LOAM (0 TO 2 PERCENT SLOPES)
MoB - MORLEY SILT LOAM (2 TO 6 PERCENT SLOPES)
MoC2 - MORLEY SILT LOAM (6 TO 12 PERCENT SLOPES, ERODED)
MoD2 - MORLEY SILT LOAM (12 TO 18 PERCENT SLOPES, ERODED)
MoE3 - MORLEY SILTY CLAY LOAM (2 TO 6 PERCENT SLOPES, SEVERELY ERODED)
MoC3 - MORLEY SILTY CLAY LOAM (6 TO 12 PERCENT SLOPES, SEVERELY ERODED)

PROPOSED RESIDENCE
WETLANDS
GRASS FILTER STRIP
CONSTRUCTION ENTRANCE
TEMPORARY STOCKPILE W/TEMPORARY SEEDING
SILT FENCE
SCALED LIMITS OF WETLANDS
SCALED LIMITS OF SOIL GROUP
TREE LINE
WETLAND LIMITS

NO VEHICULAR ACCESS FROM LOT 2 OR LOT 3 TO SHEFFIELD AVENUE SHALL BE ALLOWED EXCEPT THROUGH THE 30' EASEMENT FOR INGRESS/EGRESS.

DATE	REVISIONS	REV. BY
8/4/15	PLAN COMMISSION COMMENTS	T.G.
1/10/16	UPDATE WETLANDS	T.G.
2/29/16	DLZ COMMENTS	T.G.
1/9/18	DLZ COMMENTS	T.G.
5/15/18	DLZ COMMENTS	T.G.

LANDMARK

WINDY KNOLL ESTATES
9949 SHEFFIELD AVENUE, DYER, IN
PRIMARY PLAT

DRAWN BY: T.G.
DESIGNED BY: B.H.
CHECKED BY: M.L.

SHEET 2 OF 4
15-03-004

EROSION CONTROL NOTES

1. PERMANENTLY SEED ALL FINAL GRADE AREA (E.G., LANDSCAPE BERMS, DRAINAGE BERMS, DRAINAGE SWALES, EROSION CONTROL STRUCTURES, ETC.) AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR. SECOND OPTIMUM SEEDING DATES ARE MARCH 1 – MAY 10 AND AUGUST 10 – SEPTEMBER 30. [illegible] PRACTICE 3.12 INDIANA STORMWATER QUALITY MANUAL.
2. AS LOTS ARE [illegible] FENCES MUST BE INSTALLED BY THE NEW OWNER BEFORE HOME CONSTRUCTION IS STARTED.
3. A TREE CONSERVATION AND PROTECTION PLAN SHOULD BE IN PLACE TO INSURE SURVIVAL OF DESIRABLE TREES FROM THE EFFECTS OF COMPACTION, GRADING DAMAGE, WOUND PREVENTION AND A PLAN FOR TREE REPAIRS FROM CONSTRUCTION ACTIVITIES. SEE SOIL CONSERVATION SERVICE OR THE STATE FORESTER FOR ASSISTANCE.
4. MULCH TO PREVENT EROSION. APPLY MULCH AT THE RATE SPECIFIED IN THE INDIANA STORMWATER QUALITY MANUAL.
5. TOPSOIL STOCKPILE WILL BE LOCATED AS SHOWN ON THE DRAWING. CONTRACTOR/OWNER TO SPREAD SOIL IN THE GENERAL VICINITY OF PROPOSED HOUSE AND SEPTIC LOCATION.
6. SILT FENCING IS TO SURROUND TOPSOIL STOCKPILE ON DOWN-SLOPE SIDE. SILT FENCING IS TO ALSO SURROUND HOME DURING THE PROCESS OF CONSTRUCTION.
7. CONTRACTOR TO PERMANENT SEED THE AREAS WHERE TOPSOIL STOCKPILE WAS SPREAD.

SEEDING RECOMMENDATIONS

PERMANENT SEEDING
PERMANENTLY SEED ALL FINAL GRADE AREAS (E.G. LANDSCAPE BERMS, DRAINAGE SWALES, EROSION CONTROL STRUCTURES, ETC.) AS EACH IS COMPLETED AND ALL AREAS WHERE ADDITIONAL WORK IS NOT SCHEDULED FOR A PERIOD OF MORE THAN A YEAR.

SITE PREPARATION
1. THESE INSTALLATION PRACTICES ARE NEEDED TO CONTROL EROSION, SEDIMENTATION, AND WATER RUNOFF, SUCH AS TEMPORARY.
2. GRADE THE SITE AS SPECIFIED IN THE CONSTRUCTION PLAN AND FILL IN DEPRESSIONS THAT CAN COLLECT WATER.
3. ADD TOPSOIL TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION.

SEEDBED PREPARATION
1. FERTILIZE AS REQUIRED.
2. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED, WORKING THE FERTILIZER INTO THE SOIL 2–4 IN. DEEP WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
OPTIMUM SEEDING DATES ARE MARCH 1–MAY 10 AND AUGUST 10–SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. AS AN ALTERNATIVE, USE TEMPORARY SEEDING UNTIL THE PREFERRED DATE FOR PERMANENT SEEDING.
1. SELECT A SEEDING MIXTURE AND RATE FROM THE TABLE AND PLANT AT A DEPTH AND ON DATES SHOWN.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER-SEEDER OR BY BROADCASTING, AND COVER TO THE DEPTH SHOWN.
3. IF DRILLING OR BROADCASTING, FIRM THE SEEDBED WITH A ROLLER OR CULTIPACKER.
4. MULCH SEEDED AREAS. USE EROSION CONTROL BLANKETS ON SLOPING AREAS. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.

MAINTENANCE
1. INSPECT PERIODICALLY AFTER PLANTING TO SEE THAT VEGETATIVE STANDS ARE ADEQUATELY ESTABLISHED, RE-SEED.
2. CHECK FOR EROSION DAMAGE AFTER STORM EVENTS AND REPAIR, RESEED AND MULCH IF NECESSARY.

[illegible]

TOPSOIL (SALVAGE & UTILIZATION)

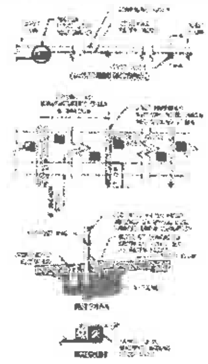
[illegible]

GENERAL PROJECT INFORMATION

PROJECT NAME: WINDY KNOLL ESTATES
COUNTY: LAKE
CITY: DYER
ADDRESS: 9949 SHEFFIELD AVENUE
PROJECT LOCATION: 100' NORTH OF INTERSECTION OF SHEFFIELD AVENUE & 101ST AVENUE
HYDROLOGIC UNIT CODE: 071200011140010
RECEIVING WATERS: HALL RUN
LATITUDE AND LONGITUDE: [illegible]
CIVIL TOWNSHIP: ST. JOHN
QUARTER: SE SECTION: 36 TOWNSHIP: 35N RANGE: 10W
PROJECT OWNER NAME: [illegible]
CONTACT PERSON: [illegible]
ADDRESS: 9949 SHEFFIELD AVENUE
CITY: DYER STATE: IN ZIP: 46311
TELEPHONE: [illegible] FAX: N/A
EMAIL: [illegible]
PLAN PREPARER NAME: LANDMARK ENGINEERING LLC
AFFILIATION: ENGINEER
ADDRESS: 7808 W. 103RD STREET
CITY: PALOS HILLS STATE: IL ZIP: 60465
TELEPHONE: 708-599-3737 FAX: 708-599-2281
EMAIL: [illegible]

THE FOLLOWING ... SHALL ... EROSION AND SEDIMENT CONTROL PRACTICES ON ALL SITES:

1. SEDIMENT-LADEN WATER FLOWING FROM THE SITE SHALL BE DETAINED BY EROSION CONTROL MEASURES APPROPRIATE TO MINIMIZE SEDIMENTATION.
2. WATER SHALL NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION AT OR DOWNSTREAM OF THE POINT OF DISCHARGE.
3. ALL ACCESS TO BUILDING SITES THAT CROSS A NATURAL WATERCOURSE, DRAINAGE EASEMENT OR SWALE/CHANNEL SHALL HAVE A CULVERT OF APPROPRIATE SIZE.
4. WASTES OR UNUSED BUILDING MATERIALS, INCLUDING BUT NOT LIMITED TO GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS AND HAZARDOUS SUBSTANCES, SHALL NOT BE CARRIED BY RUNOFF FROM A SITE. ALL WASTES SHALL BE DISPOSED OF IN A PROPER MANNER. NO CONSTRUCTION ... SHALL BE ALLOWED TO BE PLACED WITHIN THE PERMANENT POOL OF THE DETENTION/RETENTION PONDS. IF THE POND IS USED AS A SEDIMENT CONTROL MEASURE DURING ACTIVE CONSTRUCTION, [illegible]
5. SEDIMENT BEING TRACKED FROM A SITE ONTO PUBLIC OR PRIVATE ROADWAYS SHALL BE MINIMIZED. [illegible]
6. PUBLIC OR PRIVATE ROADWAYS SHALL BE KEPT CLEANED OF ACCUMULATED SEDIMENT. [illegible]
7. ALL STORM DRAIN INLETS SHALL BE PROTECTED AGAINST SEDIMENTATION WITH BARRIERS MEETING ACCEPTED CRITERIA, STANDARDS AND SPECIFICATIONS.
8. RUNOFF PASSING THROUGH A SITE FROM ADJACENT AREAS SHALL BE CONTROLLED [illegible]
9. DRAINAGE WAYS AND SWALES SHALL BE DESIGNED AND ADEQUATELY PROTECTED SO THAT THEIR FINAL GRADIENTS AND RESULTANT VELOCITIES WILL NOT CAUSE CHANNEL OR OUTLET EROSION.
10. ALL DISTURBED GROUND LEFT INACTIVE FOR FIFTEEN (15) OR MORE DAYS SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, COVERING OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES.
11. APPROPRIATE SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AS SOON AS POSSIBLE TO ANY LAND DISTURBANCE AND MAINTAINED UNTIL [illegible]
12. DURING THE PERIOD OF CONSTRUCTION ACTIVITY AT A SITE, EROSION CONTROL MEASURES NECESSARY TO MEET THE REQUIREMENTS OF THIS ORDINANCE SHALL BE MAINTAINED BY THE APPLICANT.



[illegible]

Silt Fence (Silt Saver SS-700)

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be completed by Trained Individual/Project Manager)

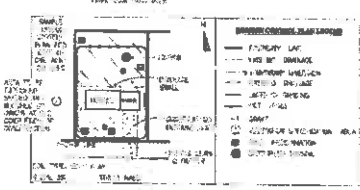
Type of Inspection: ☐ Regular Weekly ☐ Rain Event (0.5" or more)

[illegible]

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR THAT A SELF-MONITORING PROGRAM IS IMPLEMENTED.
2. AN INSPECTION OF THE SITE MUST BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY FOLLOWING EACH MEASURABLE STORM EVENT (0.5 INCH OR GREATER).
3. IF THERE ARE NO MEASURABLE STORM EVENTS IN A GIVEN WEEK, THE SITE SHOULD BE MONITORED AT LEAST ONCE IN THAT WEEK.
4. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH THE ACCEPTED SITE PLANS. THE LOG SHALL BE KEPT IN AN ORGANIZED FASHION AND AS A PERMANENT RECORD AND MADE AVAILABLE TO THE ... UPON REQUEST.

[illegible]

Temporary Construction Entrance (Gravel)



[illegible]

Sample Erosion/Sediment Control Practice Plan

DATE	REVISIONS	REV. BY
9/4/15	PLAN COMMISSION COMMENTS	T.G.
11/10/15	UPDATE WETLANDS	T.G.
12/23/15	DLZ COMMENTS	T.G.
1/5/16	DLZ COMMENTS	T.G.
3/15/16	DLZ COMMENTS	T.G.

LANDMARK ENGINEERING LLC
7808 WEST 103RD STREET
PALOS HILLS, ILLINOIS 60465-1529
Phone: (708) 599-3737
Fax: (708) 599-2281

WINDY KNOLL ESTATES
9949 SHEFFIELD AVENUE, DYER, IN
NOTES & DETAILS

DRAWN BY: T.G.
DESIGNED BY: B.H.
CHECKED BY: M.L.

SHEET 3 OF 4
15-03-004

MARK H. LANDSTROM * 29600004 * PROFESSIONAL LAND SURVEYOR * STATE OF INDIANA * PALOS HILLS, ILLINOIS

ASSESSMENT OF CONSTRUCTION PLAN ELEMENTS SECTION A

A2	11 BY 17 INCH PLAT THE 11 BY 17 INCH PLAT WILL BE SUBMITTED TO THE REVIEW AGENCY ALONG WITH THE SWPPP.
A3	PROJECT NARRATIVE THIS PROJECT PROPOSES THE DEVELOPMENT OF EXISTING FARM ACREAGE, LOCATED EAST OF AN EXISTING RESIDENCE, INTO TWO RESIDENTIAL PROPERTIES. A DRIVEWAY WILL BE CONSTRUCTED ACROSS BULL RUN, WHICH RUNS THROUGH THE PROPERTIES, TO ALLOW DRIVEWAY ACCESS FOR THE TWO NEW RESIDENTIAL PROPERTIES.
A4	VICINITY MAP THE VICINITY MAP IS LOCATED ON THIS SHEET LATITUDE N 41°28'22", W 87°31'53"
A5	LEGAL DESCRIPTION THE PROJECT IS LOCATED IN THE N 1/2 OF THE S 1/2 OF THE SE 1/4 OF SECTION 36, TOWSHIP 37 N, RANGE 10 E, IN LAKE COUNTY, INDIANA.
A6	LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS SEE SHEETS 2 OF THE PLAN SET.
A7	HYDROLOGIC UNIT CODE THE HYDROLOGIC UNIT CODE FOR THIS PROJECT IS 07130001140310.
A8	STATE AND/OR FEDERAL WATER QUALITY PERMITS THERE ARE NO ADDITIONAL WATER QUALITY PERMITS REQUIRED.
A9	STORMWATER DISCHARGE STORMWATER RUNOFF WILL GENERALLY FLOW LIKE THE EXISTING FARM ACREAGE. THE BULK OF THE IMPERVIOUS SURFACE WILL DRAIN THROUGH SWALES AND TO THE LOWEST POINTS ON THE LOTS.
A10	WETLANDS, LAKES AND WATER COURSES SEE THIS SHEET.
A11	RECEIVING WATERS THE STORMWATER DRAINS TO BULL RUN.
A12	POTENTIAL DISCHARGES TO GROUND WATER STORM WATER FROM THE DEVELOPED AREA COULD POSSIBLY INTERMIX WITH GROUNDWATER SOURCES THROUGH NATURAL PERCOLATION PROCESS.
A13	100 YR. FLOOD PLAINS, FLOODWAYS AND FLOODWAY FRINGES THE PROJECT SITE DOES NOT EXCEEDED THE BULL RUN DESIGNATED 100 YEAR FLOODZONE. A COPY OF THE CURRENT FLOODMAP IS SHOWN ON THIS SHEET FOR REFERENCE.
A14	PRE-CONSTRUCTION AND POST CONSTRUCTION PEAK DISCHARGE Q PRE (100 YR) = 7.35 cfs Q POST (100 YR) = 7.36 cfs
A15	ADJACENT LAND USE ADJACENT LAND USE INCLUDES RESIDENTIAL PROPERTIES TO THE NORTH, SOUTH & EAST OF THE SUBJECT PROPERTY WITH SHEFFIELD AVENUE RUNNING ALONG THE WEST SIDE OF THE SUBJECT PROPERTY.
A16	DISTURBED AREAS DISTURBED AREAS ARE NOTED ON SHEET 2 OF THE PLAN SET. THE SITE DISTURBANCE WILL OCCUR DURING DIFFERENT PHASES OF CONSTRUCTION.
A17	EXISTING VEGETATIVE COVER THE EXISTING SITE IS COVERED WITH FARMED LAND AND MODERATELY VEGETATED AREAS. A SMALL AMOUNT IMPERVIOUS AREA EXISTS ON THE WEST SIDE OF THE PROPERTY DUE TO THE EXISTING RESIDENCE, GARAGES & DRIVEWAYS.
A18	SOILS MAP AND SOIL DESCRIPTION THE SOILS MAP AND SOIL DESCRIPTION CAN BE FOUND ON THIS SHEET AS WELL AS SHEET 2 OF THE PLAN SET.
A19	PROPOSED STORMWATER SYSTEMS THE PROPOSED STORM WATER SYSTEMS WILL INCLUDE SWALES AND A PRIVATE STORM SEWER SYSTEM (AS NECESSARY) FOR LOT DRAINAGE.
A20	OFF-SITE CONSTRUCTION ACTIVITIES THERE ARE NO OFFSITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
A21	SOIL STOCKPILES, BORROW/DISPOSAL AREAS SEE SHEET 2 OF THE PLAN SET.
A22	EXISTING SITE TOPOGRAPHY EXISTING SITE TOPOGRAPHY GENERALLY DRAINS TO BULL RUN AS IT WINDS THROUGH THE PROPERTY. THIS IS SHOWN ON SHEET 2 OF THE PLAN SET.
A23	PROPOSED SITE TOPOGRAPHY THE PROPOSED SITE TOPOGRAPHY CAN BE SEEN ON SHEET 5 OF THE PLAN SET. THE SITE IS DESIGNED TO MINIMIZE EXISTING SITE DRAINAGE PATTERNS.
A24	PROPOSED DESCRIPTION OF DUST CONTROL CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES. DUST CONTROL MEASURES SHALL BE USED DURING ALL PHASES OF CONSTRUCTION. IF USE OF WATER IS NOT EFFECTIVE, AN ENVIRONMENTALLY FRIENDLY CHEMICAL AGENT SUCH AS A POLYMER EMULSION SHALL BE USED. ALL DUST CONTROL AGENTS SHALL BE PROVED AS SAFE FOR USE IN WETLAND AREAS REGARDLESS OF SITE LOCATION. AN ACCEPTABLE EXAMPLE OF A POLYMER EMULSION PRODUCT IS DERSEALE CALCIUM. IS NOT ACCEPTABLE AT ANY TIME.

STORMWATER POLLUTION PREVENTION – DURING CONSTRUCTION SECTION B

B1	POLLUTION POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THERE IS A POTENTIAL FOR POLLUTANTS ASSOCIATED WITH CONSTRUCTION MACHINERY INCLUDING DIESEL FUEL, HYDRAULIC FLUID, ENGINE OILS AND LUBRICANTS, ANTIFREEZE AND OTHER PETROLEUM PRODUCTS. SOIL AND SEDIMENT DISTURBED DURING EARTHWORK ACTIVITIES COULD BE BECOME POLLUTANTS IF THE TRANSPORT OF THESE MATERIALS BY WIND AND/OR WATER IS NOT MITIGATED BY EROSION CONTROL MEASURES.
B2	SEQUENCE OF STORMWATER QUALITY MEASURE IMPLEMENTATION PRIOR TO MOBILIZING HEAVY EQUIPMENT, THE TEMPORARY STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED. IMMEDIATELY UPON INSTALLING THE CONTRACTOR SHALL POST THE NECESSARY PERMITS AND RULE 5 DOCUMENTATION ONSITE. PRIOR TO STARTING EARTHWORK CONTRACTOR ON AND OTHER NON DETERMINAL ACTIVITY, ALL SILT FENCE SHALL BE INSTALLED. ALONG WITH THE SILT FENCE INSTALLATION, ALL EXISTING INLETS SHALL BE PROTECTED AS INDICATED ON THE PLANS. TEMPORARY SEEDING AND EROSION CONTROL BLANKET SHALL BE INSTALLED AS EARTHWORK IS COMPLETED.
B3	CONSTRUCTION ENTRANCE THE CONSTRUCTION ENTRANCE SHALL BE LOCATED ON THE WEST SIDE OF THE PROPERTY OFF OF SHEFFIELD AVENUE. AS SHOWN ON SHEET 2 OF THE PLAN SET.
B4	SEDIMENT CONTROL MEASURES FOR SHEET FLOW SILT FENCE SEDIMENT CONTROL MEASURES ARE SHOWN ON THE SHEET 2 OF THE PLAN SET. DETAILS CAN BE FOUND ON SHEET 3 OF THE PLAN SET.
B5	SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW SEE SHEET 2 OF THE PLAN SET.
B6	STORM SEWER INLET PROTECTION STORM SEWER INLET PROTECTION SHALL CONSIST OF INLET FILTER BASKETS AS DETAILED ON SHEET 3 OF THE PLAN SET.
B7	RUNOFF CONTROL MEASURES RUNOFF CONTROL MEASURES INCLUDE SILT FENCE WHICH IS SHOWN ON SHEET 2 OF THE PLAN SET. DETAILS CAN BE FOUND ON SHEET 3 OF THE PLAN SET.
B8	STORMWATER OUTLET PROTECTION NO STORMWATER OUTLET PROTECTION IS REQUIRED FOR THIS PROJECT.
B9	GRADE STABILIZATION STRUCTURES NO GRADE STABILIZATION STRUCTURES ARE REQUIRED FOR THIS PROJECT.
B10	LOCATION, DIMENSION, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE THE PROPOSED STORM WATER QUALITY MEASURES ARE SHOWN ON SHEET 2 OF THE PLAN SET.
B11	TEMPORARY SURFACE STABILIZATION TEMPORARY SURFACE STABILIZATION IS REQUIRED WHEN DISTURBED AREAS ARE EXPOSED TO REMAIN INACTIVE FOR A PERIOD EXCEEDING 15 DAYS. THOSE AREAS ARE PLANNED FOR TEMPORARY SEEDING IN ACCORDANCE WITH RULE SPECIFICATIONS.
B12	PERMANENT SURFACE STABILIZATION ALL AREAS ARE PLANNED FOR PERMANENT SURFACE COVER INCLUDING PAVED AREAS, PAVED BASES, OR VEGETATED COVER. WHEN SEASONAL VARIATIONS PREVENT THE INSTALLATION OF THESE SURFACE COVERS, THE CONTRACTOR SHALL INSTALL MULCH AND OR EROSION CONTROL BLANKETS OVER VULNERABLE DISTURBED AREAS. SEE SHEET 2 OF THE PLAN SET
B13	MATERIAL HANDLING AND SPILL PREVENTION THE CONTRACTOR SHALL PROVIDE A STORM SURFACE MATERIAL STAGING AREA. THE CONTRACTOR SHALL SUPPLY A REASONABLE QUANTITY WITHOUT INCLUDING ALL LIQUID MATERIAL SHALL BE STORED IN A WEATHER-PROOF, MAXIMUM SECURITY ENCLOSURE OR REMOVED FROM THE SITE DURING NON-WORK HOURS. AN ON-SITE FUELING AREA SHALL BE DESIGNATED AWAY FROM DRAINAGE CHANNELS AND INLETS THAT WOULD PERMIT THE RAPID MIGRATION OF SPILLED FUEL TO ADJACENT WATERWAYS. IF MORE THAN 55 GALLONS OF FUEL IS STORED ON-SITE, APPROPRIATE TEMPORARY CONTAINMENT MEASURES SHALL BE INSTALLED TO PREVENT MIGRATION OF SPILLS. ALL MATERIALS SHALL BE HANDLED, APPLIED AND DISPOSED OF IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IN THE EVENT OF EMERGENCIES, SPILLS OR POTENTIAL CONTAMINATION, PLEASE CALL THE APPROPRIATE NUMBER AS LISTED UNDER THE REGULATORY & LOCAL AGENCY CONTACTS MEASURE ON THIS SHEET. CONTRACTOR SHALL IMMEDIATELY SPILL KITS ON-SITE AND CLEARLY INDICATE WHERE THEY ARE STORED.
B14	MONITORING AND MAINTENANCE GUIDELINES SILT FENCE AND INLET FILTER BASKETS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM EVENT THAT HAS 0.5 INCHES OR MORE OF RAINFALL OR EQUIVALENT SNOWFALL (5 INCHES OF SNOW). DAMAGED OR DETERIORATED INLET FILTERS OR SECTIONS OF SILT FENCE SHALL BE REMOVED AND REPLACED. ALL COLLECTED SEDIMENT WILL BE DISPOSED OF IN ACCORDANCE TO LOCAL GUIDELINES. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING WEEKLY INSPECTION REPORTS FOR THE PURPOSE OF EVALUATING THE EFFECTIVENESS AND CONDITIONS OF THE INSTALLED PROPERTIES. EROSION CONTROL PRACTICE INSPECTION FORMS ARE PROVIDED AT THE CONTRACTOR'S REQUEST AS PART OF THE SUPPLEMENTARY SWPPP DOCUMENTS.
B15	EROSION AND SEDIMENT CONTROL MEASURES BUILDING LOTS SEE SHEET 2 OF THE PLAN SET.

STORMWATER POLLUTION PREVENTION – POST CONSTRUCTION SECTION C

C1	POTENTIAL POLLUTANTS ASSOCIATED WITH PROPOSED LAND USE THE PROPOSED LAND USE FOR THE SITE IS RESIDENTIAL LOTS. POLLUTANT SOURCES FOR THIS LAND USE ARE RELATED TO THE DAY TO DAY OPERATION OF MOTOR VEHICULES. POLLUTANTS INCLUDE THE FOLLOWING: 1. OIL & GREASE 2. ANTIFREEZE 3. BRAKE FLUID & BRAKE DUST 4. RUBBER FRAGMENTS 5. GASOLINE, DIESEL FUEL AND OTHER HYDROCARBONS 6. METAL FROM VEHICLES 7. DIRT AND SEDIMENT FROM WEARING OF THE ROAD SURFACE 8. MATERIAL TAR AND OR MARKING PAINT VEHICLES 9. TRASH AND OTHER HOUSEHOLD AGENTS CONTAINED IN THE TRASH
C2	POST CONSTRUCTION STORMWATER QUALITY MEASURE IMPLEMENTATION AFTER THE INSTALLATION OF THE STORM SEWER, ALL UPSTREAM INLETS SHALL REMAIN PROTECTED AND ALL SILT FENCE SHALL REMAIN IN PLACE UNTIL FURTHER TIME THE SITE STABILIZED. THE SITE SHOULD BECOME PERMANENT SEEDING.
C3	PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES THE OWNERS OF THE RESERVES SHALL MAINTAIN THE PROPERTIES REGULARLY BY MOWING LAWNS, MAINTAINING LANDSCAPING, AND KEEPING SWALES FREE FROM SEDIMENT, DEBRIS AND TRASH.
C4	LOCATION, DIMENSION, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE DETAILS AND INFORMATION SPECIFIC TO THE INSTALLATION OF ALL STORMWATER QUALITY UNITS ARE FOUND IN THE PLAN SET.
C5	MAINTENANCE GUIDELINES OF POST CONSTRUCTION STORMWATER QUALITY MEASURES SEE OPERATION AND MAINTENANCE MANUAL.

REGULATORY & LOCAL AGENCY CONTACTS

IDEM – OFFICE OF LAND QUALITY: (317) 232-8603
IDEM – EMERGENCY RESPONSE: (888) 233-7745
TOWN OF DYER FIRE DEPT: 911 (EMERGENCY)
(219) 865-4288
FEDERAL EMERGENCY SPILL HOTLINE: (800) 424-8802

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erate, medium, subangular blocky and moderate, medium, angular blocky; firm; dark-gray (10YR 4/1) clay films on ped faces; few small pebbles throughout; strongly acid; clear, wavy boundary.

B23t—26 to 36 inches, gray (10YR 5/1) heavy silty clay loam that has many, medium, distinct mottles of yellowish brown (10YR 5/6); weak, coarse, prismatic structure that breaks to moderate, coarse, angular blocky; very firm; dark-gray (10YR 4/1) clay films on ped faces; few small pebbles throughout; strongly acid; clear, wavy boundary.

C—36 to 60 inches, brown (10YR 5/3) silty clay loam; massive; very firm; many small pebbles throughout; moderately alkaline (calcareous).

The solum ranges from 20 to 42 inches in thickness. The A horizons range from dark gray to brown in color and from 10 to 15 inches in thickness. The B horizons are silty clay loam to clay.

Blount soils have lighter colored A horizons than Elliott soils. Blount soils formed in moderately fine textured glacial till and lack the stratified layers of the Del Rey soils, which formed in lacustrine deposits.

Blount silt loam, 0 to 2 percent slopes (BlA).—On this soil runoff is slow, and the erosion hazard is slight. Included with this soil in mapping are small areas of gently sloping Morley silt loam on slightly elevated rises and of Pewamo silt loam in depressions. Also included are small areas of a soil that is mostly gray near the surface.

The major limitation is wetness, but it can be overcome by establishing and maintaining an adequate drainage system. This soil responds well to good management and is suitable for intensive cropping. The main crops grown are corn, soybeans, and wheat. (Capability unit IIw-2)

Bono Series

The Bono series consists of deep, very poorly drained, fine-textured soils. These soils occur on broad depressional flats in the lake plains and are nearly level. They formed in fine-textured, glacial slack-water deposits.

Typically the surface layer is silty clay about 21 inches thick. The upper 15 inches is black, and the lower part is very dark gray.

The firm silty clay subsoil is about 18 inches thick and is gray mottled with strong brown.

The underlying material also is gray, firm silty clay, but it is mottled with yellowish brown.

Bono soils have high available moisture capacity and organic-matter content. These soils respond well to good management. The water table is at or near the surface in spring; hence, an adequate drainage system is needed to remove excess water. Internal drainage and permeability are very slow. Surface runoff is very slow or ponded.

Most areas of Bono soils are cultivated, though a few areas remain in marsh grasses. If these soils are properly managed, they are suited to all crops commonly grown in the county.

Typical profile of Bono silty clay, 200 feet west and 280 feet south of NE. corner of sec. 1, T. 35 N., R. 10 W.:

Ap—0 to 10 inches, black (10YR 2/1) light silty clay; moderate, medium, angular blocky structure; firm; many roots; medium acid; abrupt, smooth boundary.

A1—10 to 15 inches, black (N 2/0) silty clay; moderate, medium and coarse, angular blocky structure; firm; many roots along ped faces; medium acid; clear, wavy boundary.

A3—15 to 21 inches, very dark gray (N 3/0) silty clay; moderate, fine, angular blocky structure; firm; few roots; many dark reddish-brown (5YR 3/3) iron stains throughout; slightly acid; abrupt, irregular boundary.

B2g—21 to 39 inches, gray (N 5/0) silty clay that has many, medium, distinct mottles of strong brown (7.5YR 5/6); weak, medium, prismatic structure in place that breaks to moderate, medium, angular blocky when disturbed; firm when moist and sticky when wet; thick, gray (N 4/0) clay films on many ped faces; many yellowish-red (5YR 4/8) iron stains along root channels; black (N 2/0) material from the A horizon penetrates cracks and cleavages that range from 1 to 4 inches in width and extend through this horizon; neutral; abrupt, irregular boundary.

Cg—39 to 60 inches, gray (5Y 5/1) silty clay that has many, medium, distinct mottles of yellowish brown (10YR 5/6); weak, very coarse, subangular blocky structure; firm when moist; sticky when wet; few roots; thin, gray (N 5/0) clay films on many ped surfaces; 1 percent coarse fragments that are mostly shale and dolomitic limestone; black (N 2/0) material from A horizon penetrates cracks and cleavages in upper part of horizon; thin lenses of silt and fine sand; moderately alkaline (calcareous).

The A horizons range from 15 to 24 inches in thickness. The B horizon is 40 to 60 percent clay. In some places, the B horizon contains thin layers of silty clay loam and of clay loam.

Bono soils formed in lacustrine material and are stratified. In contrast, Pewamo soils formed in moderately fine textured glacial till and show no stratification.

Bono silty clay (0 to 2 percent slopes) (Bn).—This soil is on broad, depressional flats in the old Chicago Lake plain area. Included with this soil in mapping are small areas of nearly level Milford silty clay loam.

Wetness is the major limitation. Tilth is poor. Because Bono silty clay remains wet until late in spring, field operations are delayed. This soil tends to puddle and to become hard and cloddy if it is cultivated when moisture content is high. Under good management, including an adequate drainage system, Bono silty clay is suited to all crops commonly grown in the county. The main crops are corn and soybeans. (Capability unit IIIw-2)

Borrow Pits

Borrow pits (Bp) consists of areas where loamy material, peat, and muck have been removed for use on the shoulders and slopes of roads or for land fill. The surface layer and subsoil have been removed from various kinds of soils, or have been disturbed so much that the soils cannot be identified. Borrow pits can be used as wildlife habitat. (Capability unit VIIIs-1)

Brady Series

The Brady series consists of deep, somewhat poorly drained, moderately coarse textured soils. These soils occur on outwash plains and are nearly level. They formed in moderately coarse textured outwash materials and characteristically are underlain by fine or medium sand.

Typically the surface layer is fine sandy loam about 10 inches thick. The upper 8 inches is very dark gray, and the lower part is dark grayish brown.

The subsoil is about 32 inches thick. The upper 15

films on many ped faces; neutral; clear, wavy boundary.

B22t—19 to 26 inches, dark grayish-brown (10YR 4/2) silty clay that has many, medium, distinct mottles of yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; firm; very dark gray (10YR 3/1) organic coatings and clay films on ped faces; neutral; clear, irregular boundary.

C1—26 to 32 inches, grayish-brown (2.5Y 5/2) light silty clay loam that has many, medium, distinct mottles of yellowish brown (10YR 5/8); moderate, coarse, subangular blocky structure; friable; few roots; dark-gray (N 4/0) clay films on many ped faces; very dark gray (10YR 3/1) material filling vertical pockets throughout horizon; tongues from B22 horizon; moderately alkaline (calcareous); clear, wavy boundary.

C2g—32 to 60 inches, light brownish-gray (2.5Y 6/2) silty clay loam that has many, medium, distinct mottles of yellowish brown (10YR 5/8); moderate, coarse, subangular blocky structure; friable; few roots; 3 percent coarse fragments; dark-gray (N 4/0), thick clay films on many ped faces; moderately alkaline (calcareous).

The A horizons range from 10 to 20 inches in thickness. Mottles in the upper part of the B horizons range from dark grayish brown to light brownish gray. Depth to calcareous till ranges from 20 to 42 inches.

Elliott soils have darker colored A horizons than Blount and Del Rey soils. The Elliott soils formed in moderately fine textured glacial till material and lack the strata that are typical of the Del Rey soils, which formed in lacustrine materials.

Elliot silt loam (0 to 2 percent slopes) (El).—Included with this soil in mapping are small areas of Markham silt loam that has slopes of less than 2 percent and of Pewamo silty clay loam in depressions. Also included are mall areas of Markham silt loam, 2 to 6 percent slopes, eroded. Other inclusions are some areas where Elliott silt loam is eroded and other areas where it has slopes of more than 2 percent.

Runoff is slow, and the erosion hazard slight. Wetness is the major limitation. An adequate drainage system is needed to remove excess water. This soil responds well to good management and is suitable for intensive cropping. The main crops grown are corn, soybeans, and wheat. (Capability unit IIw-2)

Gilford Series

The Gilford series consists of deep, very poorly drained, moderately coarse textured and medium-textured soils. These soils are along glacial channels and on broad depressional outwash plains. They formed in moderately coarse textured and medium-textured outwash material.

Typically the surface layer is black fine sandy loam about 22 inches thick.

The subsoil, about 16 inches thick, is dark-gray sandy loam mottled with light brownish gray and yellowish brown.

The underlying material is loose, fine and medium sand that is light brownish gray and that shades to brownish yellow and yellowish brown as depth increases.

Gilford soils are high in organic-matter content and natural fertility. Tilth is good. These soils have moderate available moisture capacity and moderately rapid permeability. Surface runoff is very slow. Because the water able is high in spring, a suitable drainage system that combines open ditches, tiles, and water table control structures is needed to insure good crop growth. This system of drainage is well suited to these soils, for it prevents the lowering of the water table and droughtiness.

Most areas of Gilford soils are cultivated. Under good management these soils are well suited to all crops commonly grown in the county. In the northern part of the county, they are used extensively for special crops.

Typical profile of Gilford fine sandy loam, 100 feet west and 100 feet north of SE. corner of SE¼ sec. 29, T. 32 N., R. 9 W.:

Ap—0 to 11 inches, black (10YR 2/1) fine sandy loam; moderate, medium, granular structure; very friable; neutral; abrupt, smooth boundary.

A1—11 to 22 inches, black (10YR 2/1) fine sandy loam; moderate, fine and medium, subangular blocky structure; friable; pockets of black (10YR 2/1) sandy clay loam, and lenses of light brownish-gray (10YR 6/2) medium sand; slightly acid; clear, wavy boundary.

Bg—22 to 38 inches, dark-gray (10YR 4/1) sandy loam that has common, medium, distinct mottles of light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6); weak, medium and coarse, subangular blocky structure; friable; pockets of sandy clay loam up to 4 inches in thickness, and thin lenses of light brownish-gray (10YR 6/2) medium sand; neutral; abrupt, wavy boundary.

C1—38 to 50 inches, light brownish-gray (10YR 6/2) fine and medium sand; single grain; loose; neutral; abrupt, smooth boundary.

C2—50 to 60 inches, brownish-yellow (10YR 6/6) and yellowish-brown (10YR 5/6) fine and medium sand; single grain; loose; moderately alkaline (calcareous).

The A horizons range in thickness from 12 to 24 inches and in color from black to very dark grayish brown. The pockets of sandy clay loam in the B horizon are as much as 10 inches thick in some places, and in other places the sandy clay loam occurs in thin lenses. The C horizons contain gravel in some places. Depth to moderately alkaline sand ranges from 42 to 60 inches or more.

Gilford soils have a finer textured solum than Maumee soils. The B horizon in Gilford soils is less clayey and more permeable than the B horizon in Rensselaer soils.

Gilford fine sandy loam (0 to 2 percent slopes) (Gd).—This soil is mainly along the Kankakee River in the southern part of the county. Its profile is the one described as typical for the series. Included with this soil in mapping are small areas where the surface layer is loam. Also included are small depressional areas of Maumee loamy fine sand and of Brady fine sandy loam. Other inclusions are in areas where less than 8 inches of muck is on the soil surface and in other areas where strata of fine sand and silt or till are at a depth below 40 inches.

As the surface layer of this soil dries out, it crusts, and sand grains are free to blow. Young plants may be destroyed or severely damaged by this windblown sand. The major limitation is wetness, which can be overcome by a suitable controlled drainage system. This soil responds well to good management and is suitable for intensive cropping. The main crops grown are corn and soybeans; the special crops grown are tomatoes, onions, cabbage, and carrots. (Capability unit IIw-4)

Gilford mucky fine sandy loam (0 to 2 percent slopes) (Gf).—This soil has a profile similar to that described as typical for the series, but the uppermost 8 to 12 inches of

east and 30 feet north of SW. corner of NW¼ sec. 18, T. 32 N., R. 9 W.:

Ap—0 to 9 inches, black (10YR 2/1) silty clay loam; weak, medium, subangular blocky structure; firm; slightly acid; abrupt, smooth boundary.

A1—9 to 17 inches, very dark gray (N 3/0) silty clay loam that has common, fine, distinct mottles of dark brown (7.5YR 3/2); moderate, medium, prismatic structure; firm; shiny faces on peds; slightly acid; gradual, wavy boundary.

B21—17 to 23 inches, dark-gray (5Y 4/1) light silty clay that has many, medium, prominent mottles of yellowish red (5YR 4/6) and few, medium, distinct mottles of light brownish gray (2.5YR 6/2); moderate, medium, prismatic structure; firm; shiny faces on peds; very dark gray (N 3/0) fillings in cracks; neutral acid; clear, wavy boundary.

B22t—23 to 37 inches, gray (5Y 6/1) silty clay that has common, medium, prominent mottles of yellowish red (5YR 4/6); moderate, medium, prismatic structure; firm; shiny faces on peds; neutral; clear, wavy boundary.

C—37 to 60 inches, gray (5Y 5/1) silty clay loam that has common, medium, prominent mottles of yellowish brown (10YR 5/6); weak, medium, prismatic structure; firm; very dark gray (N 3/0) organic stains; neutral.

The solum ranges from 36 to 60 inches in thickness. The A horizons are 10 to 22 inches thick. The B horizons contain thin stratified layers of fine sand and gravelly sandy loam in some places. Areas underlain by calcareous sand and gravel at a depth of 40 to 60 inches are mapped separately as a sandy substratum phase.

Milford soils have less clay in the A horizons and C horizons than Bono soils, which developed in silty clay material. Milford soils developed in lacustrine material, whereas Pewamo soils developed in moderately fine textured glacial till and lack stratified layers. The A horizons and B horizons of Milford soils are finer textured than corresponding horizons in Rensselaer soils, which are underlain by interbedded silt and sand.

Milford silt loam, overwash (0 to 2 percent slopes) (Mo).—This soil has a profile similar to that described as typical for the series, except that the surface layer of this soil is silt loam instead of silty clay loam. It is underlain by silty clay loam or clay loam glacial till or lacustrine material. The silt loam extends from the surface to a depth of 8 to 20 inches.

Included with this soil in mapping are small areas where the dark-colored layer extends to a depth of 28 inches. Also included are areas of Del Rey silt loam, Pewamo silt loam, and Rensselaer loam.

Wetness is the major limitation, and an adequate drainage system is needed. This soil responds well to good management and is well suited to crops and small grains. The main crops are corn, soybeans, and wheat. (Capability unit IIw–1)

Milford silty clay loam (0 to 2 percent slopes) (Mr).—This soil has the profile described as typical for the series. It is underlain by silty clay loam lacustrine material.

Included with this soil in mapping are small areas of nearly level, slightly elevated Del Rey silt loam, of depressional Bono silty clay and Rensselaer loam, and of Marsh.

The major limitation is wetness, and an adequate drainage system is needed. Tilth is poor. If this soil is cultivated when the moisture content is too high, large clods are likely to form. These clods become hard when dry, and they are extremely difficult to break. This soil responds well to good management and is suitable for intensive cropping. The main crops are corn, soybeans, and wheat. (Capability unit IIw–1)

Milford silty clay loam, sandy substratum (0 to 2 percent slopes) (Ms).—This soil has a profile similar to that described as typical for the series, except that the underlying material in this soil is sand and gravel at a depth of 40 to 60 inches. Also, a thin layer of sandy loam to clay loam is between the silty clay loam and the sand and gravel.

Included with this soil in mapping are small areas of Rensselaer loam and Del Rey silt loam.

Wetness is the major limitation, and tilth is poor. If this soil is cultivated when the moisture content is high, large clods are likely to form. These clods become hard when dry and are extremely difficult to break. Under good management that provides a drainage system, this soil is suited to all crops commonly grown in the county. The sand and gravel underlying this soil at a depth of 40 to 60 inches favor good drainage. The main crops grown are corn, soybeans, and wheat. (Capability unit IIw–1)

Milford-Linwood-Wallkill complex (0 to 2 percent slopes) (Mt).—This complex consists of poorly drained and very poorly drained soils that formed in organic materials and loamy and clayey mineral soils. It occurs in slack water or lacustrine areas.

The complex is about 30 percent Milford silty clay loam, about 30 percent Linwood muck, and about 30 percent Wallkill silt loam. Included in the mapping of this complex are moderately well drained soils that dominantly are of silt loam and loam textures throughout but that contain thin layers, or strata, of sandy loam. Also included are areas of soils that are calcareous throughout the profile.

Wetness is the major limitation. Surface runoff is very slow or ponded, and internal drainage is very slow. These soils have high available moisture capacity and organic-matter content. They are subject to flooding unless protected by levees.

Areas that have been cleared of trees and have adequate drainage are mostly cultivated. Other areas remain in pasture, woodland, or swamp grasses. (Capability unit IIw–1)

Morley Series

The Morley series consists of deep, moderately well drained, medium-textured and moderately fine textured soils that are gently sloping to steep (fig. 7). These soils formed in moderately fine textured glacial till under a thin mantle of loess.

Typically the surface layer is silt loam about 8 inches thick. The uppermost 6 inches is dark grayish brown, and the lower part is brown.

The subsoil extends to a depth of 44 inches and has a few small pebbles scattered throughout. The uppermost 7 inches is firm, yellowish-brown silty clay loam. The middle is very firm, yellowish-brown silty clay mottled in the lower part with grayish brown. The lower 17 inches of the subsoil, mottled with yellowish and brownish colors, is grayish-brown, very firm silty clay that grades

to firm silty clay loam. The subsoil is strongly acid to a depth of 27 inches, is slightly acid at that depth, and is moderately alkaline below a depth of 36 inches.

The underlying material is calcareous silty clay loam that contains many small pebbles and is mottled with light brownish gray and yellowish brown.

Morley soils have high available moisture capacity and are low in natural fertility and organic-matter content. Permeability is slow. These soils are subject to erosion because the subsoil and underlying material are clayey. Erosion control practices are needed to reduce soil losses.

Most areas of the Morley soils are cultivated or are in bluegrass pasture. A few areas remain wooded. Under good management, these soils are suited to all crops commonly grown in the county and crop growth is good.

Typical profile of Morley silt loam, 2 to 6 percent slopes, 200 feet east and 600 feet south of NW. corner of NW¼ sec. 21, T. 33 N., R. 7 W.:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; moderate, fine and medium, granular structure; friable; slightly acid; abrupt, smooth boundary.

A2—6 to 8 inches, brown (10YR 5/3) silt loam; weak, coarse, platy structure that breaks to moderate, fine, subangular blocky; friable; strongly acid; abrupt, wavy boundary.

Figure 7.—Profile of Morley silt loam, 2 to 6 percent slopes.

B1t—8 to 12 inches, yellowish-brown (10YR 5/4) light silty clay loam; moderate, fine and medium, subangular blocky structure; firm; few small pebbles; strongly acid; clear, wavy boundary.

B21t—12 to 15 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, fine and medium, subangular blocky structure; firm; very dark brown (10YR 3/2) clay films on ped faces; few small pebbles; strongly acid; abrupt, wavy boundary.

B22t—15 to 23 inches, yellowish-brown (10YR 5/4) silty clay; weak, medium, prismatic structure that breaks to strong, coarse, angular blocky; very firm; very dark brown (10YR 3/2) clay films on ped faces; few small pebbles; strongly acid; clear, wavy boundary.

B23t—23 to 27 inches, yellowish-brown (10YR 5/4) silty clay that has few, fine, faint mottles of grayish brown (10YR 5/2); weak, medium, prismatic structure that breaks to strong, coarse, angular blocky; very firm; very dark brown (10YR 3/2) clay films on ped faces; few small pebbles; strongly acid; clear, wavy boundary.

B24t—27 to 36 inches, grayish-brown (10YR 5/2) silty clay that has common, fine, distinct mottles of yellowish brown (10YR 5/8); weak, coarse, prismatic structure that breaks to moderate, coarse, angular blocky; very firm; very dark brown (10YR 3/2) clay films on ped faces; few small pebbles; slightly acid; clear, wavy boundary.

B3—36 to 44 inches, grayish-brown (10YR 5/2) silty clay loam that has many, medium, distinct mottles of brownish yellow (10YR 6/6); weak, medium, subangular blocky and angular blocky structure; firm; very dark grayish-brown (10YR 3/2) clay films on ped faces; few small pebbles; moderately alkaline (calcareous); clear, wavy boundary.

C—44 to 60 inches, light brownish-gray (10YR 6/2) silty clay loam that has few, medium, distinct mottles of yellowish brown (10YR 5/4); massive; firm; many small pebbles; moderately alkaline (calcareous).

The A horizons range from dark gray to brown in color and from 6 to 11 inches in thickness. The solum ranges from 20 to 48 inches in thickness.

Morley soils have lighter colored A horizons than Markham soils. The B horizons in Morley soils are browner and less mottled than the B horizons in Blount soils.

Morley silt loam, 2 to 6 percent slopes (MuB).—This soil is along drainageways and streams or on small knolls. It has the profile described as typical for the series. Included with this soil in mapping are small areas of gently sloping, eroded Morley silt loam. Also included are areas of Morley silt loam, 6 to 12 percent slopes, eroded. Other inclusions are some areas where gray mottles occur just below the surface layer. Runoff is medium.

This Morley soil has only moderate limitations, and crops grow well on it. The main crops grown are corn, soybeans, and wheat. This soil, however, normally is not farmed as a separate unit because it is so small in size. It generally is included in the farming operations of surrounding or adjacent soils. (Capability unit IIe-6)

Morley silt loam, 6 to 12 percent slopes, eroded (MuC2).—This soil is on narrow breaks that border the valleys and on ridges along small drainageways that dissect broader areas. It has a profile similar to that described as typical for the series, but some of the yellowish-brown material from the subsoil has been mixed into the dark grayish-brown plow layer and the depth to limy silty clay loam is only about 30 inches. Included with this soil in mapping are small spots where the surface layer is slightly eroded or severely eroded.

This eroded Morley soil can be used for all crops

grown in the county but has some serious limitations. It is highly susceptible to erosion because slopes are strong and surface runoff is medium to rapid. Excessive use for row crops results in an added loss of soil from the surface layer and reduces organic-matter content and natural fertility. Proper erosion control practices are needed if crop growth is to be good. The main crops grown are small grains and meadow plants. (Capability unit IIIe-6)

Morley silt loam, 12 to 18 percent slopes, eroded (MuD2).—This soil is on breaks along the major streams in the central part of the county. It has a profile similar to that described as typical for the series, but some of the yellowish-brown material from the subsoil has been mixed with remnants of the original surface layer and the depth to limy silty clay loam is only about 20 inches. Included with this soil in mapping are small areas of slightly eroded Morley silt loam and of severely eroded Morley silty clay loam.

This soil is highly susceptible to erosion because slopes are moderately steep and surface runoff is rapid. Most areas are in permanent pasture or are wooded. Farming on the contour and maintaining ground cover throughout the year help in controlling erosion and runoff. (Capability unit IVe-6)

Morley silt loam, 18 to 25 percent slopes (MuE).—This soil has a profile similar to that of Morley silt loam, 2 to 6 percent slopes. It is on wooded breaks along major streams in the county. Included with this soil in mapping are small areas of Morley silt loam, 12 to 18 percent slopes, eroded.

Erosion is the major hazard because of steep slopes and rapid runoff. Permanent pasture is a suitable use for this soil (fig. 8). The response to additions of lime and fertilizer is good. (Capability unit VIe-1)

Morley silty clay loam, 2 to 6 percent slopes, severely eroded (Mv63).—This soil is on knolls and ridgetops adjacent to the level, somewhat poorly drained Blount soils and to the depressional, poorly drained Pewamo soils. It has a profile similar to that described as typical for the series except that erosion has removed most of the original surface layer. The plow layer consists largely of yellowish-brown silty clay loam from the subsoil and remnants of the original surface layer. The plow layer is lighter colored, lower in organic-matter content, and more difficult to work than the original surface layer. Runoff is medium to rapid.

Included with this soil in mapping are small areas of Morley silt loam, 6 to 12 percent slopes, eroded.

Figure 8.—**Permanent pasture in foreground. Hardwoods on breaks in background. The soil is Morley silt loam, 18 to 25 percent slopes.**

This severely eroded silty clay loam has severe limitations for use as cropland. Although it generally is farmed with less eroded Blount or Pewamo soils, this soil requires special management that helps to control erosion and to maintain good growth of crops. It is used mainly for small grains and as meadow. (Capability unit IIIe-6)

Morley silty clay loam, 6 to 12 percent slopes, severely eroded (MvC3).—This soil is along drainageways or in depressions. It has a profile similar to that described for the series except that erosion has removed most of the surface layer and, in places, some of the subsoil. The plow layer consists mostly of yellowish-brown silty clay loam from the subsoil and remnants of the grayish-brown original surface layer. The plow layer is lighter colored, lower in organic-matter content, and more difficult to plow than the original surface layer. This layer is cloddy when dry. Many small pebbles are on the surface, and often larger stones are plowed up. Gullies are common. The depth to limy silty clay loam is only about 20 inches.

Included with this soil in mapping are small areas of Morley silt loam, 6 to 12 percent slopes, eroded, and of strongly sloping Morley silty clay loam.

This soil has very severe limitations for use as cropland. It is highly susceptible to erosion and is low in fertility. Surface runoff is rapid. This soil is better suited to meadow or pasture (fig. 9) in a long rotation with row crops than to row crops grown continuously. Maintaining ground cover throughout the year is of prime importance. (Capability unit IVe-6)

Morley silty clay loam, 18 to 25 percent slopes, severely eroded (MvE3).—This gullied soil is on breaks along the streams and drainageways of the county. It has a profile similar to that described as typical for the series except that erosion has removed most of the surface layer and, in places, some of the subsoil. The plow layer consists mostly of yellowish-brown silty clay loam from the subsoil and a small amount of grayish-brown silt loam from the original surface layer.

This soil is highly susceptible to erosion because slopes are steep and runoff is very rapid. It is low in fertility and organic-matter content and is not suitable for cultivation. It is more suitable for woodland or use as wild-

Figure 9.—Excellent stand of alfalfa growing on Morley silty clay loam, 6 to 12 percent slopes, severely eroded, and on Pewamo silty clay loam in the depressions.

WETLAND ASSESSMENT

WinTR-55 Current Data Description

--- Identification Data ---

User:	BH	Date:	3/29/2016
Project:	Windy Knoll	Units:	English
SubTitle:	Offsite Tributary	Areal Units:	Acres
State:	Indiana		
County:	Lake NOAA_B		
Filename:	<new file>		

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Offsite Tr		Outlet	67	65	.754

Total area: 67 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	3.7	4.23	4.83	5.35	5.83	.0

Storm Data Source:	User-provided custom storm data
Rainfall Distribution Type:	NOAA_B
Dimensionless Unit Hydrograph:	<standard>

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.0	3.7	4.23	4.83	5.35	5.83	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: NOAA_B
Dimensionless Unit Hydrograph: <standard>

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 100-Yr (cfs)
SUBAREAS	
Offsite Tr	91.95
REACHES	
OUTLET	91.95

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 100-Yr (cfs) (hr)
SUBAREAS	
Offsite Tr	91.95 12.55
REACHES	
OUTLET	91.95

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Structure Output Table

Reach Identifier / Structure Identifier	Peak Flow (PF), Storage Volume (SV), Stage (STG) by Rainfall Return Period 100-Yr

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Offsite Tr	67.00	0.754	65	Outlet	

Total Area: 67 (ac)

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Offsite Tr							
SHEET	100	0.0770	0.240				0.143
SHALLOW	1843	0.0027	0.050				0.611
						Time of Concentration	.754

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Offsite TrWoods - grass combination	(fair)	B	67	65
Total Area / Weighted Curve Number			67	65
			==	==

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Structure Description - User Entered

Reach Identifier	Surface Area @ Crest (ac)	Height Above Crest (ft)	Surface Area @ Ht Above (ac)	Pipe Diameter (in)	Head on Pipe (ft)	Weir Length (ft)

BH

Windy Knoll
Offsite Tributary
Lake NOAA_B County, Indiana

Structure Rating Details - Computed

STORMWATER MODELS

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

6-B

NOTICE OF ACTION
Application No. 300-7-16-I-II-III

July 20, 2016

Mr. Jack Slager
Preserve, S.J. LLC
8900 Wicker Avenue
St. John, IN 46373

DEAR PETITIONER:

THIS NOTICE IS TO INFORM YOU THAT YOUR PETITION OR REQUEST FOR

Bull Run Ditch, St. John Twp.
Applicant: Perserve, S.J., LLC
Application to "Perform Work", "Connect/Discharge" and "Place Temporary/Permanent Structure" within regulated drain for the purpose of a subdivision development.

WAS CONSIDERED BY THE DRAINAGE BOARD AT A MEETING ON THE 20th DAY OF **July, 2016** WITH THE FOLLOWING ACTION:

_____ APPROVED PETITION OR REQUEST.

_____ APPROVED PETITION OR REQUEST SUBJECT TO CONDITIONS LISTED ON ATTACHMENT #1.

_X_ CONTINUED PETITION OR REQUEST TO **AUGUST 17, 2016** MEETING.

_____ DENIED PETITION OR REQUEST.

_____ REMOVED FROM THE AGENDA. IF YOU WOULD LIKE TO REAPPLY TO THE DRAINAGE BOARD *A NEW APPLICATION WILL NEED TO BE SUBMITTED*, 14 DAYS PRIOR TO THAT MONTH'S MEETING.

_____ PETITION NOT RELEASED DUE TO NON-PAYMENT OF APPLICATION FEE(S).

IF YOU HAVE ANY FURTHER QUESTIONS, PLEASE CONTACT BILL EMERSON, JR. OR DAN GOSSMAN AT (219) 755-3745.

Mary Ellen Kupsik
MARY ELLEN KUPSIK
Lake County Drainage Board Secretary

6-B
7-20-16

APPLICATION NO. 300-7-16-I-II-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

- [x] **I. WORK WITHIN A REGULATED DRAIN**
- [x] **II. CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**
- [x] **III. PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**
- [ ] **IV. REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) Preserve, S.J., LLC, 8900 Wicker Ave, St. John IN 46373
Contact: Jack Slager, (219) 365-6000

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: Bull Run Creek

SECTION(s): 30,31 TOWNSHIP: 35N RANGE: 9W

ADDRESS OR DESCRIPTION OF LOCATION

Northwest Corner of 101st Avenue and White Oak Aveneu, St. John, Indiana

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

-Grading for detention basins in the floodplain/floodway for The Preserve Subdivision

-Installation of restrictor structures and storm sewer to outlet into Bull Run Creek

THE PURPOSE OF THE REQUEST IS TO:

-Approval of the stormwater management aspects of The Preserve Subdivision

1. THE APPLICANT HEREBY AGREES TO RESTORE THE LAND, DRAINAGE DITCHES AND ALL OTHER SURFACES AND/OR STRUCTURES WITHIN THE DITCH AND REGULATED DRAIN EASEMENT TO A CONDITION AS GOOD OR BETTER THAN THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE APPLICANT SHALL AND WILL INDEMNIFY AND HOLD HARMLESS ANY AND ALL COUNTY ENTITIES, INCLUDING BUT NOT LIMITED TO THE COUNTY OF LAKE, BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND/OR AGENTS FROM AND AGAINST ANY AND ALL DAMAGES, INJURIES, LOSSES, DEMANDS, OR COSTS PROXIMATELY CAUSED BY THE FAULT, CULPABILITY OR NEGLIGENCE OF THE APPLICANT IN THE PERFORMANCE OF OR IN ANY WAY RELATED TO OR RESULTING FROM THE PERMITTED WORK OVER AND ACROSS THE DRAINS OR DRAINAGE RIGHTS-OF-WAY UNDER THE JURISDICTION OF THE LAKE COUNTY DRAINAGE BOARD.

3. **IMPORTANT CLAUSE IN THIS PERMIT APPLICATION: THE APPLICANT FURTHER AGREES TO NOTIFY THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR IN WRITING AT LEAST FIVE (5) DAYS IN ADVANCE OF THE COMMENCEMENT OF THE WORK DESCRIBED IN THIS APPLICATION, AND WILL ALSO GIVE NOTICE TO THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR THE DAY PRECEDING THE COMPLETION OF THE WORK. FAILURE TO PROVIDE SUCH NOTICE MAY CAUSE REVOCATION OF THE PERMIT(S) AND APPLICANT MAY INCUR PENALTIES. PLEASE SEND NOTICES TO: LAKE COUNTY DRAINAGE BOARD, ATTN: LAKE COUNTY DRAINAGE BOARD SECRETARY, 2293 N. MAIN STREET, CROWN POINT, IN 46307**

4(a). THE APPLICANT AGREES TO AVOID CAUSING DAMAGE TO THE ESTABLISHED REGULATED DRAIN OR TO LANDOWNERS AFFECTED BY THE DRAIN, PURSUANT TO I.C.36-9-27-72(D).

4(b). FOR APPLICATIONS REGARDING THE PLACEMENT OF TEMPORARY STRUCTURES IN THE DRAIN'S EASEMENT (BOX III, PAGE 1), SUCH AS FENCES, TREES, GARDENS, SHEDS, ETC., THE APPLICANT UNDERSTANDS THAT, IF THE DRAINAGE BOARD GRANTS PERMISSION TO PLACE SAID TEMPORARY STRUCTURES WITHIN THE DRAINAGE EASEMENT, SAID PLACEMENT IS AT THE OWNER'S RISK. SHOULD THE COUNTY SURVEYOR/DRAINAGE BOARD, THEIR AGENTS, REPRESENTATIVES, CONTRACTORS OR OTHERS AT THE DIRECTION OF SAID COUNTY SURVEYOR/DRAINAGE BOARD, NEED ACCESS TO THE DRAIN OR EASEMENT AND THE STRUCTURE REQUIRES REMOVAL, THE OWNER SHALL REMOVE SAME AT THE OWNER'S EXPENSE. SHOULD THE OWNER FAIL TO REMOVE SAME IN A TIMELY FASHION, THEN THE COUNTY SURVEYOR/DRAINAGE BOARD SHALL CAUSE SAME TO BE REMOVED AND THE OWNER SHALL HAVE NO RECOURSE. AFTER COMPLETION OF THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S ACTIVITY, THE OWNER SHALL HAVE THE RIGHT TO REINSTALL THE TEMPORARY STRUCTURE IN COMPLIANCE WITH THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S REQUIREMENTS. THE COUNTY SURVEYOR/DRAINAGE BOARD MAY REQUIRE PAYMENT FROM THE OWNER FOR THE COST OF THE REMOVAL OR REPLACEMENT FOR ANY OF SAID ITEMS, PURSUANT TO STATUTE.

5. THE APPLICANT SHALL HAVE WORKMAN'S COMPENSATION INSURANCE AS REQUIRED BY STATE LAW.

6. THE APPLICANT SHALL PAY THE LAKE COUNTY SURVEYOR'S OFFICE AN APPLICATION FEE(S) PRIOR TO THE APPLICATION BEING CONSIDERED AT THE NEXT MONTHLY LAKE COUNTY DRAINAGE BOARD MEETING.

7. THE APPLICANT SHALL CARRY PUBLIC LIABILITY INSURANCE MEETING THE MAXIMUM DOLLAR LIMITS AS SPECIFIED IN I.C. 34-13-3-1 ET SEQ. OR ANY SUBSEQUENTLY ENACTED APPLICABLE STATUTES, AND SHALL LIST THE COUNTY OF LAKE, THE BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND AGENTS AS OTHER INSUREDS.

8. THIS PERMIT DOES NOT OBVIATE THE NEED TO OBTAIN ANY OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATION, IF REQUIRED.

9 BY SUBMITTING THIS APPLICATION, THE APPLICANT HEREBY STATES THE FOLLOWING:

A. **THE PROPOSED WORK MEETS ALL HYDRAULIC REQUIREMENTS THAT WILL PERMIT THE DRAIN TO FUNCTION PROPERLY. (I.C. 36-9-37-72 (C)).**
B. **THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY**
C. **NO HARMFUL POLLUTION IS LIKELY TO RESULT. (I.C. 36-9-27-17(C)).**

10. ENGINEERING PLANS, WHICH SUBSTANTIATE THE ABOVE STATEMENTS, MUST ACCOMPANY THIS APPLICATION. THESE PLANS MUST INCLUDE SUFFICIENT DETAIL TO ALLOW VERIFICATION OF THE ABOVE STATEMENTS. (THESE PLANS SHOULD GENERALLY INCLUDE DIMENSIONS, ELEVATIONS, CALCULATIONS, DESCRIPTIONS OR THE QUANTITIES AND TYPES OF MATERIAL TO BE USED, DISCHARGE CALCULATIONS AND OTHER RELEVANT INFORMATION.)

11. UPON COMPLETION OF THE WORK, "AS BUILT PLANS", SIGNED AND SEALED BY AN INDIANA REGISTERED PROFESSIONAL ENGINEER, SHALL BE FORWARDED TO THE LAKE COUNTY DRAINAGE BOARD WITHIN 30 DAYS.

12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: JACK A. SLAGER DATE: 7/15/16
(PRINT OR TYPE NAME)

(SIGNATURE)

SUBMITTED FOR: PRESERVE, S.J., LLC

ADDRESS P.O. BOX 677

ST JOHN, IN 46373

PHONE#: (219) 365-6000

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

DATE: APPROVED: DENIED:

SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT* I]**

APPROVAL SHALL BE VALID FOR A PERIOD OF TWO YEARS FROM THE DATE OF APPROVAL. *SHOULD THE WORK AND ALL RELATED ACTIVITIES NOT BE COMPLETED BY THAT TIME, PETITIONER IS REQUIRED TO REAPPLY. SHOULD THE SCOPE OF WORK, PLANS AND SPECIFICATIONS, OR ACTIVITIES LISTED HEREIN BE MODIFIED, PETITIONER MUST NOTIFY THE LAKE COUNTY SURVEYOR AND THE DRAINAGE BOARD OF THESE MODIFICATIONS FOR REVIEW AND/OR APPROVAL/DENIAL BY THE COUNTY SURVEYOR/DRAINAGE BOARD.*

Project Overview

The Preserve Subdivision is located at the northwest corner of 101st Avenue and White Oak Avenue in the Town of St. John, Lake County, Indiana. A site location map can be found on the cover of the plan set. The project site to be developed is approximately 234 acres, and is adjacent to Bull Run Creek. The proposed site will be developed with 432 single family residential lots, public roadways, watermain, sanitary sewer extensions, and on-site detention basins with associated storm sewers. The on-site detention basins are designed to provide stormwater detention for the proposed on-site conditions and the emergency overflow weirs can safely pass the existing tributary areas per St. John standards. The proposed detention basins B, C, D, and existing basin H discharge directly to Bull Run Creek. Detention Basins E and F discharge to Basin G which outlets to a 12" culvert beneath White Oak Avenue and connects to an existing 10" PVC pipe that passes through Rosewood Estates prior to discharging to Bull Run Creek. Basin A discharges to a 24" culvert beneath White Oak Avenue. The proposed detention basins were analyzed using PondPack (TR55). 100 Year rainfall data from Table 3-5 of the Lake County, Indiana Stormwater Technical Standards Manual was used in the site's stormwater calculations.

Existing Drainage Characteristics

The existing site is a farmed area with some wooded areas with a drainage divide though the center of the property which divides drainage to the east and west. The northwest portion of the site (Area 4) slopes toward the existing detention basin (Basin H). The surrounding properties to the north and east are residential developments. The existing Basin H serves the 111 acre development to the north while also accepting 11 acres from the east. The area to the west and south of the site are bounded by Bull Run Creek. Please see the Existing Conditions Drainage Exhibit in this report.

The US EPA Watershed Map indicates that the site lies within the Bull Run Creek watershed (12 digit Hydrologic Unit Code 071200011308). Lake County topography indicates a major ridge in the center of the site that splits the drainage to the east and west, and the southern portion of the site drains south into Bull Run Creek. The area of the site that drains west flows into a series of depressions that ultimately discharges to a small channel at the southeast portion of the site. The small channel outlets to a 24" culvert beneath White Oak Avenue that daylights on the east side of the road where the flow travels overland for approximately 600 feet before entering Bull Run Creek. The existing drainage patterns are maintained under proposed conditions.

The USFWS National Wetland Inventory Map indicates the presence of wetlands on the site. Wetland Consultants are in the process of preparing a formal wetland delineation report for the area. Please see the National Wetlands Inventory Map Exhibit in this report.

The Custom Soil Survey Report for the Town of St. John, Lake County, Indiana, generated by the USDA, indicates that the soils likely to be found on the site are Blount silt loam, Del Rey silt loam, Pewamo silty clay loam, Elliott silt

loam, Markham silt loam, Milford silt loam, Morley silty clay loam, and Morley silt loam, all classified as Group-C or C/D soils. Please see the Hydrologic Soil Group Exhibit in this report for more information.

The FEMA Flood Insurance Rate Map (FIRM) Panel numbers for the site are Map Numbers 18089C0228E, 18089C0210E, 18089C0220E, 18089C0236E effective January 18, 2012. The panels indicate the majority of the site is within a Zone X designation. However, there is also Numbered Zone A Floodplain and Floodway associated with Bull Run Creek located on the site. Please see the FEMA FIRM Map Exhibit in this report.

The existing conditions currently drain into the Bull Run Creek watershed at multiple discharge points. The Existing Conditions Drainage Exhibit shows the site divided into 18 tributary areas. Area 4 drains to the existing detention basin. Areas 5, 6, 7, 8, 9, 10, 11, 12, and 13 discharge directly into Bull Run Creek. Areas 1, 2, 15, and 18 discharge into existing storm sewer along White Oak Avenue and 93rd Avenue which routes through the residential development to the north before ultimately discharging to the existing detention basin. Areas 3, 17, and 16 have depressions that overflow to the area 14 depression which ultimately discharges to the 24" Culvert beneath White Oak Avenue. The existing conditions were modeled using PondPack (TR-55) assuming surface coverage of straight row crops in good hydrologic condition (CN=85, 89) and woods in good hydrologic condition (CN=72, 79), and a critical duration analysis was prepared. Please see the attached Pond Pack analysis for more information.

Local drainage ordinances require that the allowable release rate be determined as the lesser of the calculated existing 2 year frequency discharge rate, and 0.2 cfs/acre of development. As shown in Table 1, for the 2 year frequency, the critical duration is 1 hour with a flow of 96.23 cfs. Using the 0.2 cfs/acre of development yields a release rate of 46.8 cfs for the 234 acres to be disturbed. Therefore, the gross allowable release rate is governed by 0.2 cfs/acre and is 46.8 cfs.

Proposed Conditions

The proposed site will consist of 432 single family residential lots, public roadways, watermain, sanitary sewer extensions, and on-site detention basins with associated storm sewers. The on-site detention basins are designed to provide stormwater detention for the proposed on-site conditions and the emergency overflow weir can safely pass the existing tributary areas per St. John standards. The subdivision will be constructed with seven (7) proposed detention basins located onsite along with one (1) existing basin that was sized with the intention of providing storage for the proposed development. Proposed basins A, D, E, F and G will be dry bottom ponds, compensatory storage basins B and C will be wet bottom with native plantings to promote water quality.

The system was modeled and designed using PondPack, which is able to analyze multiple interconnected ponds. Connections between ponds were modeled as culverts where standard pipe sizes are proposed. Where nonstandard sizes are needed, an orifice plate will be provided, and has been modeled accordingly. The hydrologic modeling used rainfall data from the Lake County, Indiana Stormwater Technical Standards Manual to analyze the

required detention for the 100 year, 24 hour event. Please see the PondPack Model included in this report for more information.

The proposed development area is approximately 234 acres, and the unrestricted area accounts for 17.99 acres of the disturbed area. The average lot area was calculated to be 1/3 acre with a corresponding CN = 81, 86 for hydrologic soil groups C and D, respectively. The basins were assumed to have a CN = 98 at the normal water elevation. The peak unrestricted release rate is 9.56 cfs, and the net allowable release rate is **37.24 cfs** (the gross allowable of 46.8 cfs minus the unrestricted release rate of 9.56 cfs).

Although the amount of floodplain/floodway impact is minimized, there is impact to the floodplain and floodway of Bull Run Creek as a result of the proposed development. An analysis of these impacts is currently underway and will be submitted under separate cover. It is anticipated that a LOMR will be required to redelineate the floodway in areas where impact is unavoidable.

The proposed system discharges at six (6) locations. The proposed tributary areas and their respective curve numbers can be found on the Proposed Curve Number Exhibit in this report. Storage tables for the existing and proposed basins can be found in the PondPack analysis of this report.

Basin H currently serves 111 acres of residential area north of the proposed development and approximately 11 acres from the east. An additional 62.34 acres from the proposed development is routed to Basin H. It should be noted that the 11 acres from the east has also been routed to Basin H, stored, and released at a controlled rate. The outfall from the basin is below the 100 year BFE and was designed assuming a zero release. The peak release rate based on analyzing the basin as a free outfall is 20.39 cfs. **2.49 cfs** of this outflow is attributed to the proposed project site, and the remainder is attributed to the areas originally tributary to the existing pond.

Basin B serves 52.83 acres of the proposed development and provides 10-100 year compensatory storage for fill in the floodplain. The basin provides adequate storage for onsite detention as well as a surplus of compensatory storage. Basin B also has been sized for zero release due to the release being below the 100 Year BFE. The peak release rate based on analyzing the basin as a free outfall is **0.86 cfs**.

Basin C serves 11.77 acres of the proposed development and provides 0-10 year compensatory storage. The basin allows inflow from Bull Run Creek via an 18" pipe with a tide flex backflow preventer. The water stored is then released via a 4" restrictor back into Bull Run Creek at a peak rate of **0.89 cfs**. Because the pond outlets directly to Bull Run Creek below the 100 year BFE, the proposed pond was sized assuming a zero release rate, and provides this required amount of storage, plus the 0-10 year compensatory storage.

Basin D serves 12.44 acres of the proposed development. The peak release rate from the basin into Bull Run Creek is **1.01 cfs**.

Basin A serves 31.6 acres of the development. The peak release rate from the basin is **3.22 cfs**. It discharges into an existing channel that drains to a proposed 24" flared end section with a capacity of 31.99 cfs.

Basin E releases to the proposed Basin F at a peak rate of 0.20 cfs, and Basin F discharges to Basin G at a peak rate of 2.44 cfs. Basin G has a maximum release rate of **1.51 cfs**. The release from Basin G is governed by the 2.47 cfs capacity of the 10" PVC pipe east of White Oak Avenue with existing tributary flows east of White Oak Avenue combined with unrestricted release flows from the west ROW of White Oak Avenue (0.94 cfs).

The total combined peak discharge from the proposed basins during the 100 year 24 hour event is 11.67 cfs which is significantly lower than the allowable release rate of 37.24 cfs.

All proposed detention facilities have been provided with an emergency overflow weir sized to pass the peak 50 year flow tributary to each pond. From North to South, Detention Basin H will overflow directly into Bull Run Creek. Pond E will overflow into Pond F, which then overflows to Pond G. The overflow of Pond G will be routed onto the proposed roadway and into Pond A. Pond A will overflow to the east across the roadway and into a tributary to Bull Run Creek. Ponds D, B, and C will all overflow directly into Bull Run Creek. The overflow weirs for the proposed basins maintain the existing discharge points. The peak 50 year flow was calculated using PondPack. Please see the Overflow Weir Design Calculations for more information.

Storm Sewer

The majority of the proposed on-site storm sewer systems are designed to convey runoff from storms up to and including the 5-year event per the Town of St. John Standards. Per the St. John ordinance, a minimum time of concentration of 10 minutes is used for inlet times, and runoff coefficients are 0.40 for single family. The grading design includes overland flow routes that ultimately drain to the proposed stormwater detention basins when storms exceed the required storm sewer capacity. The storm sewer along eastern and northern property lines that discharges to Detention Basin H has been designed to convey the 100 year storm from the "East Offsite Area", rather than having the route travel over land for that area. See the storm sewer calculations and General Layout Plan for more information. In other locations where an overland flow route was impossible, the storm sewer was sized to convey the 100 year storm.

Stormwater Pollution Prevention Measures

During construction, silt fence will be installed along the perimeter of proposed grading operations for the project where applicable. The storm water pollution prevention measures are indicated on the Erosion and Sedimentation Control Plans and Details. A complete Storm Water Pollution Prevention Plan (SWPPP) has been completed and

is included with this submittal. Erosion control measures put in place to prevent stormwater pollution include silt fence, erosion control blanket, rip rap, and inlet filter baskets. All of these measures will be completed, inspected, and maintained as detailed in the SWPPP and the Soil Erosion and Sediment Control Plan & Details.

Conclusion

The proposed The Preserve Subdivision improvements provide stormwater management consistent with the requirements of the Town of St. John standards. In addition, best management practices will be provided throughout the entire construction process to ensure that stormwater runoff is improved to the extent possible before being released. Should you have any questions, comment or concerns regarding the content of this report, please do not hesitate to contact Brad Moore.

Brad Moore
Project Manager

Handout 6-B
8-17-16

AMERICAN
STRUCTUREPOINT
INC.

7260 Shadeland Station, Indianapolis, Indiana 46256
TEL 317.547.5580 FAX 317.543.0270

www.structurepoint.com

MEMORANDUM

DATE: August 16, 2016

TO: Bill Emerson, Jr., Lake County Surveyor

FROM: Brian Payne, Staff Engineer

RE: The Preserve Subdivision

CC: Dan Gossman, Jordan McCormack, Jeremy Schmitt; Trevor Murphy

As requested by the Lake County Surveyor's Office, American Structurepoint, Inc. has reviewed The Preserve, S.J. LLC's application to perform the following tasks within a regulated drain:

- Work within a regulated drain
- Connect/discharge into the drain/easement
- Place temporary/permanent structure in the drain/easement

The application was submitted by Jack Slager of The Preserve, S.J. LLC, for the construction of the The Preserve Subdivision. The project site to be developed is approximately 234 acres, and is adjacent to Bull Run Creek. The proposed site will be developed with 432 single family residential lots, public roadways, watermain, sanitary sewer extensions, and on-site detention basins with associated storm sewers.

The proposed project is described as follows:

Owner/Developer: The Preserve, S.J. LLC

Project Name: The Preserve Subdivision

Project Location: The Preserve Subdivision is located at the northwest corner of 101st Avenue and White Oak Avenue in the Town of St. John, Lake County, Indiana. The project is adjacent to approximately 6,000 linear feet of Bull Run Creek.

Description:

To complete the project as designed, the Applicant needs permission to construct the following within the 75-foot drainage easement :

- Install approximately 700 feet of 10 inch sanitary sewer
- Install 3 sanitary manholes
- Install 1 storm inlet and 1 storm catch basin
- Install approximately 64 feet of 12 inch storm sewer
- Construct 6 discharge points
- Construct 3 flared end section outfalls into Bull Run Creek

Submittal Information Received:

- Final Stormwater Report dated July 19, 2016 and delivered to the Lake County Surveyor's Office.
- Drainage Board Application
- Construction Plans

Review Comments:

American Structurepoint, Inc. has completed an initial review of the submittal to verify compliance with the requirements of the Lake County Ordinance No. 1365C. This comment letter is a review for general conformance with standards. The Project Engineer is still responsible for his own design and neither the County nor the County's Engineer is responsible for the completeness of the design. We submit the following comments:

1. Provide calculations showing the amount of compensatory storage that will be required for this project (1.5 times the volume of fill being added within the floodplain) as stated in the "No Net Loss Floodplain Storage Policy", Chapter 3, Section 2.D. Compare this to the amount of compensatory storage currently proposed.

2. Provide a copy to the Drainage Board of any Letter of Map Revision submitted to FEMA.

3. While completing the work, the applicant shall ensure that no construction debris or materials are placed within the ditch channel.

4. Excavated soil and other construction materials shall be stockpiled outside of the ditch channel and outside the top of banks of the ditch. Work within the drainage easement should be minimized to just the tasks necessary for completion of this project.

5. Outlets into Bull Run shall be constructed in accordance with INDOT standards for erosion protection and shall be permitted with the Indiana Department of Natural Resources, as appropriate.

6. The contractor is responsible for successfully implementing the Soil Erosion and Sedimentation Control Plan included in the Project Plans.

7. All future phases of the project shall be submitted to Drainage Board for review before they are constructed.

8. The applicant's design meets the Lake County Stormwater Ordinance requirements that general release rates do not exceed 0.2 cfs per acre of development. The applicant is only using 9.58 cfs of the total 34.56 cfs release rate allowed for this project.

Recommendation:

Request the applicant provide a response to the compensatory storage comment above prior to being considered for approval.

Reviewed by: Jeremy Schmitt

Date: 8/16/16

6-B
7-20-16

APPLICATION NO. 300-7-16-I-II-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

- [x] **I. WORK WITHIN A REGULATED DRAIN**
- [x] **II. CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**
- [x] **III. PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**
- [ ] **IV. REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) Preserve, S.J., LLC, 8900 Wicker Ave, St. John IN 46373
Contact: Jack Slager, (219) 365-6000

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: Bull Run Creek

SECTION(s): 30,31 TOWNSHIP: 35N RANGE: 9W

ADDRESS OR DESCRIPTION OF LOCATION

Northwest Corner of 101st Avenue and White Oak Aveneu, St. John, Indiana

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

-Grading for detention basins in the floodplain/floodway for The Preserve Subdivision

-Installation of restrictor structures and storm sewer to outlet into Bull Run Creek

THE PURPOSE OF THE REQUEST IS TO:

-Approval of the stormwater management aspects of The Preserve Subdivision

1. THE APPLICANT HEREBY AGREES TO RESTORE THE LAND, DRAINAGE DITCHES AND ALL OTHER SURFACES AND/OR STRUCTURES WITHIN THE DITCH AND REGULATED DRAIN EASEMENT TO A CONDITION AS GOOD OR BETTER THAN THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE APPLICANT SHALL AND WILL INDEMNIFY AND HOLD HARMLESS ANY AND ALL COUNTY ENTITIES, INCLUDING BUT NOT LIMITED TO THE COUNTY OF LAKE, BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND/OR AGENTS FROM AND AGAINST ANY AND ALL DAMAGES, INJURIES, LOSSES, DEMANDS, OR COSTS PROXIMATELY CAUSED BY THE FAULT, CULPABILITY OR NEGLIGENCE OF THE APPLICANT IN THE PERFORMANCE OF OR IN ANY WAY RELATED TO OR RESULTING FROM THE PERMITTED WORK OVER AND ACROSS THE DRAINS OR DRAINAGE RIGHTS-OF-WAY UNDER THE JURISDICTION OF THE LAKE COUNTY DRAINAGE BOARD.

3. **IMPORTANT CLAUSE IN THIS PERMIT APPLICATION: THE APPLICANT FURTHER AGREES TO NOTIFY THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR IN WRITING AT LEAST FIVE (5) DAYS IN ADVANCE OF THE COMMENCEMENT OF THE WORK DESCRIBED IN THIS APPLICATION, AND WILL ALSO GIVE NOTICE TO THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR THE DAY PRECEDING THE COMPLETION OF THE WORK. FAILURE TO PROVIDE SUCH NOTICE MAY CAUSE REVOCATION OF THE PERMIT(S) AND APPLICANT MAY INCUR PENALTIES. PLEASE SEND NOTICES TO: LAKE COUNTY DRAINAGE BOARD, ATTN: LAKE COUNTY DRAINAGE BOARD SECRETARY, 2293 N. MAIN STREET, CROWN POINT, IN 46307**

4(a). THE APPLICANT AGREES TO AVOID CAUSING DAMAGE TO THE ESTABLISHED REGULATED DRAIN OR TO LANDOWNERS AFFECTED BY THE DRAIN, PURSUANT TO I.C.36-9-27-72(D).

4(b). FOR APPLICATIONS REGARDING THE PLACEMENT OF TEMPORARY STRUCTURES IN THE DRAIN'S EASEMENT (BOX III, PAGE 1), SUCH AS FENCES, TREES, GARDENS, SHEDS, ETC., THE APPLICANT UNDERSTANDS THAT, IF THE DRAINAGE BOARD GRANTS PERMISSION TO PLACE SAID TEMPORARY STRUCTURES WITHIN THE DRAINAGE EASEMENT, SAID PLACEMENT IS AT THE OWNER'S RISK. SHOULD THE COUNTY SURVEYOR/DRAINAGE BOARD, THEIR AGENTS, REPRESENTATIVES, CONTRACTORS OR OTHERS AT THE DIRECTION OF SAID COUNTY SURVEYOR/DRAINAGE BOARD, NEED ACCESS TO THE DRAIN OR EASEMENT AND THE STRUCTURE REQUIRES REMOVAL, THE OWNER SHALL REMOVE SAME AT THE OWNER'S EXPENSE. SHOULD THE OWNER FAIL TO REMOVE SAME IN A TIMELY FASHION, THEN THE COUNTY SURVEYOR/DRAINAGE BOARD SHALL CAUSE SAME TO BE REMOVED AND THE OWNER SHALL HAVE NO RECOURSE. AFTER COMPLETION OF THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S ACTIVITY, THE OWNER SHALL HAVE THE RIGHT TO REINSTALL THE TEMPORARY STRUCTURE IN COMPLIANCE WITH THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S REQUIREMENTS. THE COUNTY SURVEYOR/DRAINAGE BOARD MAY REQUIRE PAYMENT FROM THE OWNER FOR THE COST OF THE REMOVAL OR REPLACEMENT FOR ANY OF SAID ITEMS, PURSUANT TO STATUTE.

5. THE APPLICANT SHALL HAVE WORKMAN'S COMPENSATION INSURANCE AS REQUIRED BY STATE LAW.

6. THE APPLICANT SHALL PAY THE LAKE COUNTY SURVEYOR'S OFFICE AN APPLICATION FEE(S) PRIOR TO THE APPLICATION BEING CONSIDERED AT THE NEXT MONTHLY LAKE COUNTY DRAINAGE BOARD MEETING.

7. THE APPLICANT SHALL CARRY PUBLIC LIABILITY INSURANCE MEETING THE MAXIMUM DOLLAR LIMITS AS SPECIFIED IN I.C. 34-13-3-1 ET SEQ. OR ANY SUBSEQUENTLY ENACTED APPLICABLE STATUTES, AND SHALL LIST THE COUNTY OF LAKE, THE BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND AGENTS AS OTHER INSUREDS.

8. THIS PERMIT DOES NOT OBVIATE THE NEED TO OBTAIN ANY OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATION, IF REQUIRED.

9 BY SUBMITTING THIS APPLICATION, THE APPLICANT HEREBY STATES THE FOLLOWING:

A. **THE PROPOSED WORK MEETS ALL HYDRAULIC REQUIREMENTS THAT WILL PERMIT THE DRAIN TO FUNCTION PROPERLY. (I.C. 36-9-37-72 (C)).**
B. **THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY**
C. **NO HARMFUL POLLUTION IS LIKELY TO RESULT. (I.C. 36-9-27-17(C)).**

10. ENGINEERING PLANS, WHICH SUBSTANTIATE THE ABOVE STATEMENTS, MUST ACCOMPANY THIS APPLICATION. THESE PLANS MUST INCLUDE SUFFICIENT DETAIL TO ALLOW VERIFICATION OF THE ABOVE STATEMENTS. (THESE PLANS SHOULD GENERALLY INCLUDE DIMENSIONS, ELEVATIONS, CALCULATIONS, DESCRIPTIONS OR THE QUANTITIES AND TYPES OF MATERIAL TO BE USED, DISCHARGE CALCULATIONS AND OTHER RELEVANT INFORMATION.)

11. UPON COMPLETION OF THE WORK, "AS BUILT PLANS", SIGNED AND SEALED BY AN INDIANA REGISTERED PROFESSIONAL ENGINEER, SHALL BE FORWARDED TO THE LAKE COUNTY DRAINAGE BOARD WITHIN 30 DAYS.

12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: JACK A. SLAGER DATE: 7/15/16
(PRINT OR TYPE NAME)

(SIGNATURE)

SUBMITTED FOR: PRESERVE, S.D., LLC

ADDRESS P.O. BOX 677

ST JOHN, IN 46373

PHONE#: (219) 365-6000

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

DATE: APPROVED: DENIED:

SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT I*]**

APPROVAL SHALL BE VALID FOR A PERIOD OF TWO YEARS FROM THE DATE OF APPROVAL. *SHOULD THE WORK AND ALL RELATED ACTIVITIES NOT BE COMPLETED BY THAT TIME, PETITIONER IS REQUIRED TO REAPPLY. SHOULD THE SCOPE OF WORK, PLANS AND SPECIFICATIONS, OR ACTIVITIES LISTED HEREIN BE MODIFIED, PETITIONER MUST NOTIFY THE LAKE COUNTY SURVEYOR AND THE DRAINAGE BOARD OF THESE MODIFICATIONS FOR REVIEW AND/OR APPROVAL/DENIAL BY THE COUNTY SURVEYOR/DRAINAGE BOARD.*

Project Overview

The Preserve Subdivision is located at the northwest corner of 101st Avenue and White Oak Avenue in the Town of St. John, Lake County, Indiana. A site location map can be found on the cover of the plan set. The project site to be developed is approximately 234 acres, and is adjacent to Bull Run Creek. The proposed site will be developed with 432 single family residential lots, public roadways, watermain, sanitary sewer extensions, and on-site detention basins with associated storm sewers. The on-site detention basins are designed to provide stormwater detention for the proposed on-site conditions and the emergency overflow weirs can safely pass the existing tributary areas per St. John standards. The proposed detention basins B, C, D, and existing basin H discharge directly to Bull Run Creek. Detention Basins E and F discharge to Basin G which outlets to a 12" culvert beneath White Oak Avenue and connects to an existing 10" PVC pipe that passes through Rosewood Estates prior to discharging to Bull Run Creek. Basin A discharges to a 24" culvert beneath White Oak Avenue. The proposed detention basins were analyzed using PondPack (TR55). 100 Year rainfall data from Table 3-5 of the Lake County, Indiana Stormwater Technical Standards Manual was used in the site's stormwater calculations.

Existing Drainage Characteristics

The existing site is a farmed area with some wooded areas with a drainage divide though the center of the property which divides drainage to the east and west. The northwest portion of the site (Area 4) slopes toward the existing detention basin (Basin H). The surrounding properties to the north and east are residential developments. The existing Basin H serves the 111 acre development to the north while also accepting 11 acres from the east. The area to the west and south of the site are bounded by Bull Run Creek. Please see the Existing Conditions Drainage Exhibit in this report.

The US EPA Watershed Map indicates that the site lies within the Bull Run Creek watershed (12 digit Hydrologic Unit Code 071200011308). Lake County topography indicates a major ridge in the center of the site that splits the drainage to the east and west, and the southern portion of the site drains south into Bull Run Creek. The area of the site that drains west flows into a series of depressions that ultimately discharges to a small channel at the southeast portion of the site. The small channel outlets to a 24" culvert beneath White Oak Avenue that daylights on the east side of the road where the flow travels overland for approximately 600 feet before entering Bull Run Creek. The existing drainage patterns are maintained under proposed conditions.

The USFWS National Wetland Inventory Map indicates the presence of wetlands on the site. Wetland Consultants are in the process of preparing a formal wetland delineation report for the area. Please see the National Wetlands Inventory Map Exhibit in this report.

The Custom Soil Survey Report for the Town of St. John, Lake County, Indiana, generated by the USDA, indicates that the soils likely to be found on the site are Blount silt loam, Del Rey silt loam, Pewamo silty clay loam, Elliott silt

loam, Markham silt loam, Milford silt loam, Morley silty clay loam, and Morley silt loam, all classified as Group-C or C/D soils. Please see the Hydrologic Soil Group Exhibit in this report for more information.

The FEMA Flood Insurance Rate Map (FIRM) Panel numbers for the site are Map Numbers 18089C0228E, 18089C0210E, 18089C0220E, 18089C0236E effective January 18, 2012. The panels indicate the majority of the site is within a Zone X designation. However, there is also Numbered Zone A Floodplain and Floodway associated with Bull Run Creek located on the site. Please see the FEMA FIRM Map Exhibit in this report.

The existing conditions currently drain into the Bull Run Creek watershed at multiple discharge points. The Existing Conditions Drainage Exhibit shows the site divided into 18 tributary areas. Area 4 drains to the existing detention basin. Areas 5, 6, 7, 8, 9, 10, 11, 12, and 13 discharge directly into Bull Run Creek. Areas 1, 2, 15, and 18 discharge into existing storm sewer along White Oak Avenue and 93rd Avenue which routes through the residential development to the north before ultimately discharging to the existing detention basin. Areas 3, 17, and 16 have depressions that overflow to the area 14 depression which ultimately discharges to the 24" Culvert beneath White Oak Avenue. The existing conditions were modeled using PondPack (TR-55) assuming surface coverage of straight row crops in good hydrologic condition (CN=85, 89) and woods in good hydrologic condition (CN=72, 79), and a critical duration analysis was prepared. Please see the attached Pond Pack analysis for more information.

Local drainage ordinances require that the allowable release rate be determined as the lesser of the calculated existing 2 year frequency discharge rate, and 0.2 cfs/acre of development. As shown in Table 1, for the 2 year frequency, the critical duration is 1 hour with a flow of 96.23 cfs. Using the 0.2 cfs/acre of development yields a release rate of 46.8 cfs for the 234 acres to be disturbed. Therefore, the gross allowable release rate is governed by 0.2 cfs/acre and is 46.8 cfs.

Proposed Conditions

The proposed site will consist of 432 single family residential lots, public roadways, watermain, sanitary sewer extensions, and on-site detention basins with associated storm sewers. The on-site detention basins are designed to provide stormwater detention for the proposed on-site conditions and the emergency overflow weir can safely pass the existing tributary areas per St. John standards. The subdivision will be constructed with seven (7) proposed detention basins located onsite along with one (1) existing basin that was sized with the intention of providing storage for the proposed development. Proposed basins A, D, E, F and G will be dry bottom ponds, compensatory storage basins B and C will be wet bottom with native plantings to promote water quality.

The system was modeled and designed using PondPack, which is able to analyze multiple interconnected ponds. Connections between ponds were modeled as culverts where standard pipe sizes are proposed. Where nonstandard sizes are needed, an orifice plate will be provided, and has been modeled accordingly. The hydrologic modeling used rainfall data from the Lake County, Indiana Stormwater Technical Standards Manual to analyze the

required detention for the 100 year, 24 hour event. Please see the PondPack Model included in this report for more information.

The proposed development area is approximately 234 acres, and the unrestricted area accounts for 17.99 acres of the disturbed area. The average lot area was calculated to be 1/3 acre with a corresponding CN = 81, 86 for hydrologic soil groups C and D, respectively. The basins were assumed to have a CN = 98 at the normal water elevation. The peak unrestricted release rate is 9.56 cfs, and the net allowable release rate is **37.24 cfs** (the gross allowable of 46.8 cfs minus the unrestricted release rate of 9.56 cfs).

Although the amount of floodplain/floodway impact is minimized, there is impact to the floodplain and floodway of Bull Run Creek as a result of the proposed development. An analysis of these impacts is currently underway and will be submitted under separate cover. It is anticipated that a LOMR will be required to redelineate the floodway in areas where impact is unavoidable.

The proposed system discharges at six (6) locations. The proposed tributary areas and their respective curve numbers can be found on the Proposed Curve Number Exhibit in this report. Storage tables for the existing and proposed basins can be found in the PondPack analysis of this report.

Basin H currently serves 111 acres of residential area north of the proposed development and approximately 11 acres from the east. An additional 62.34 acres from the proposed development is routed to Basin H. It should be noted that the 11 acres from the east has also been routed to Basin H, stored, and released at a controlled rate. The outfall from the basin is below the 100 year BFE and was designed assuming a zero release. The peak release rate based on analyzing the basin as a free outfall is 20.39 cfs. **2.49 cfs** of this outflow is attributed to the proposed project site, and the remainder is attributed to the areas originally tributary to the existing pond.

Basin B serves 52.83 acres of the proposed development and provides 10-100 year compensatory storage for fill in the floodplain. The basin provides adequate storage for onsite detention as well as a surplus of compensatory storage. Basin B also has been sized for zero release due to the release being below the 100 Year BFE. The peak release rate based on analyzing the basin as a free outfall is **0.86 cfs**.

Basin C serves 11.77 acres of the proposed development and provides 0-10 year compensatory storage. The basin allows inflow from Bull Run Creek via an 18" pipe with a tide flex backflow preventer. The water stored is then released via a 4" restrictor back into Bull Run Creek at a peak rate of **0.89 cfs**. Because the pond outlets directly to Bull Run Creek below the 100 year BFE, the proposed pond was sized assuming a zero release rate, and provides this required amount of storage, plus the 0-10 year compensatory storage.

Basin D serves 12.44 acres of the proposed development. The peak release rate from the basin into Bull Run Creek is **1.01 cfs**.

Basin A serves 31.6 acres of the development. The peak release rate from the basin is **3.22 cfs**. It discharges into an existing channel that drains to a proposed 24" flared end section with a capacity of 31.99 cfs.

Basin E releases to the proposed Basin F at a peak rate of 0.20 cfs, and Basin F discharges to Basin G at a peak rate of 2.44 cfs. Basin G has a maximum release rate of **1.51 cfs**. The release from Basin G is governed by the 2.47 cfs capacity of the 10" PVC pipe east of White Oak Avenue with existing tributary flows east of White Oak Avenue combined with unrestricted release flows from the west ROW of White Oak Avenue (0.94 cfs).

The total combined peak discharge from the proposed basins during the 100 year 24 hour event is 11.67 cfs which is significantly lower than the allowable release rate of 37.24 cfs.

All proposed detention facilities have been provided with an emergency overflow weir sized to pass the peak 50 year flow tributary to each pond. From North to South, Detention Basin H will overflow directly into Bull Run Creek. Pond E will overflow into Pond F, which then overflows to Pond G. The overflow of Pond G will be routed onto the proposed roadway and into Pond A. Pond A will overflow to the east across the roadway and into a tributary to Bull Run Creek. Ponds D, B, and C will all overflow directly into Bull Run Creek. The overflow weirs for the proposed basins maintain the existing discharge points. The peak 50 year flow was calculated using PondPack. Please see the Overflow Weir Design Calculations for more information.

Storm Sewer

The majority of the proposed on-site storm sewer systems are designed to convey runoff from storms up to and including the 5-year event per the Town of St. John Standards. Per the St. John ordinance, a minimum time of concentration of 10 minutes is used for inlet times, and runoff coefficients are 0.40 for single family. The grading design includes overland flow routes that ultimately drain to the proposed stormwater detention basins when storms exceed the required storm sewer capacity. The storm sewer along eastern and northern property lines that discharges to Detention Basin H has been designed to convey the 100 year storm from the "East Offsite Area", rather than having the route travel over land for that area. See the storm sewer calculations and General Layout Plan for more information. In other locations where an overland flow route was impossible, the storm sewer was sized to convey the 100 year storm.

Stormwater Pollution Prevention Measures

During construction, silt fence will be installed along the perimeter of proposed grading operations for the project where applicable. The storm water pollution prevention measures are indicated on the Erosion and Sedimentation Control Plans and Details. A complete Storm Water Pollution Prevention Plan (SWPPP) has been completed and

is included with this submittal. Erosion control measures put in place to prevent stormwater pollution include silt fence, erosion control blanket, rip rap, and inlet filter baskets. All of these measures will be completed, inspected, and maintained as detailed in the SWPPP and the Soil Erosion and Sediment Control Plan & Details.

Conclusion

The proposed The Preserve Subdivision improvements provide stormwater management consistent with the requirements of the Town of St. John standards. In addition, best management practices will be provided throughout the entire construction process to ensure that stormwater runoff is improved to the extent possible before being released. Should you have any questions, comment or concerns regarding the content of this report, please do not hesitate to contact Brad Moore.

Brad Moore
Project Manager

6-C
8-17-16

Christopher B. Burke Engineering, LLC

One Professional Center Suite 314 Crown Point, IN 46307 219.663.3410 cbbel-in.com

HANDOUT

August 16, 2016

Torrenga Engineering, Inc.
907 Ridge Road
Munster, IN 46321

Attention: Donald C. Torrenga

Subject: **Southridge Elementary School**
Watercourse: Cady Marsh Ditch
Applicant: Southridge Elementary School
Engineer: Torrenga Engineering, Inc.
(CBBEL Project No. 93-169)

Dear Mr. Torrenga:

At the request of the Lake County Surveyor's Office (LCSO), Christopher B. Burke Engineering, LLC (CBBEL) has performed a review of the material submitted for the subject project by Torrenga Engineering, Inc. (Torrenga). The project consists of the construction of an 8-inch underdrain system adjacent to Cady Marsh Ditch to drain existing low lying areas during most storm events. The project is located just north of Southridge Elementary School at Johnston Street and Liable Road in Highland, Indiana. Cady Marsh Ditch contains Zone AE floodplain and floodway according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Lake County, Indiana and Incorporated Areas, Panels 137 of 480, dated March 16, 2016. The area is partially located within the mapped Zone X floodplain (500-year) but also appears to be within the Zone AE floodplain by elevation (610.0 ft.). However, the project appears to maintain all existing grades resulting in no net floodplain fill. We believe this project would qualify for a General License from the Indiana Department of Natural Resources – Division of Water as a qualified outfall. The purpose of the CBBEL review was to comment on compliance with the Lake County, Indiana Stormwater Management Ordinance (Ordinance) and standard engineering methods.

CBBEL received the following items for review:

- Letter, prepared by Torrenga, dated August 5, 2016.
- Lake County Drainage Board Permit Application
- "Southridge Elementary School" Plan Set (2 Sheets), prepared by Torrenga, dated August 5, 2016.

CBBEL staff has reviewed the supplied information and recommends approval with the following conditions:

1. The 8-inch PVC pipe should be SDR 26 or thicker. This should be noted on the plan set.
2. We recommend that the site owner sign a hold harmless agreement with the LCSO regarding potential damage to the proposed underdrain system. The LCSO is responsible

for maintenance of all regulated drains in Lake County. Therefore, the LCSO performs or hires contractors to perform maintenance that often requires heavy equipment within the easement limits. Nyoplast pipe and/or catchbasins lack high loading capacities when buried at minimum cover making them susceptible to damage if heavy equipment is driven over top of the structures. The LCSO will not be held liable for any damage to the proposed system during necessary maintenance operations adjacent to Cady Marsh Ditch.

3. The southern bank of Cady Marsh Ditch should be restored to existing conditions. We recommend that SC-250 erosion control blanket be used to stabilize the slope from the water's edge to the top of bank. An SC-250 detail and call-out should be added to the plan set. All necessary measures should be taken to minimize sediment from entering the waterway during construction activities.
4. The temporary stockpile should be removed from the easement limits after construction has been completed.

If you have any questions please do not hesitate to call (847) 823-0500.

Sincerely,

Donald C. Oliphant, PE, CFM, CPESC
Senior Water Resources Engineer

CC: Bill Emerson, Jr. – Lake County Surveyor
Dan Gossman – LCSO
Mary Ellen Kupsik – LCSO
Thomas Burke, PE – CBBEL

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6-C
8-17-16

Torrenga Engineering, Inc.

REGISTERED PROFESSIONAL ENGINEERS
907 RIDGE ROAD
MUNSTER, INDIANA 46321

www.torrenga.com **Office (219) 836-8918** **Fax (219) 836-1138**

August 5, 2016

Mr. Thomas Burke
Christopher Burke Engineering, Ltd.
2100 N. Main Street
Crown Point, IN 46307

Re: Highland High School, Highland, IN

Dear Mr. Burke:

Highland High School located at 9135 Erie Street in Highland, Indiana has a large open field located between the north wall of the school and the Cady Marsh Ditch. The Cady Marsh Ditch's top of bank elevation is higher than the elevation of the field causing flooding during all rainstorm events. The maintenance department for the school is unable to cut the grass for days after any rain event. Our request is to install a perforated pipe connected to an existing catch basin that outlet's into the Cady Marsh Ditch. A flap gate will be installed to prevent water from backing up into the field.

The project contacts are as follows:

Owner/Developer
Mr. Brian Smith, Superintendent
Town of Highland School Corporation
9145 Kennedy Ave
Highland, IN 46322
(219)924-7400

Engineer:
Torrenga Engineering, Inc.
907 Ridge Road
Munster, Indiana 46321
(219)836-8918

Sincerely,

Donald C. Torrenga
Torrenga Engineering Inc.

APPLICATION NO. 301-8-16-I-II-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

[X] **I. WORK WITHIN A REGULATED DRAIN**

[X] **II. CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**

[X] **III. PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**

[ ] **IV. REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) School Town of Highland, specifically Highland High School

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: Cady Marsh Ditch

SECTION(s): 28 TOWNSHIP: 36 RANGE: 9

ADDRESS OR DESCRIPTION OF LOCATION 9145 Kennedy Ave
HIGHLAND, IN 46322

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

Perforated pipe will be installed under the athletic fields. With a discharge pipe to Cady Marsh Ditch.

THE PURPOSE OF THE REQUEST IS TO:

To elevate drainage problems at the athletic fields at Highland High School in Highland, IN.

1. THE APPLICANT HEREBY AGREES TO RESTORE THE LAND, DRAINAGE DITCHES AND ALL OTHER SURFACES AND/OR STRUCTURES WITHIN THE DITCH AND REGULATED DRAIN EASEMENT TO A CONDITION AS GOOD OR BETTER THAN THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE APPLICANT SHALL AND WILL INDEMNIFY AND HOLD HARMLESS ANY AND ALL COUNTY ENTITIES, INCLUDING BUT NOT LIMITED TO THE COUNTY OF LAKE, BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND/OR AGENTS FROM AND AGAINST ANY AND ALL DAMAGES, INJURIES, LOSSES, DEMANDS, OR COSTS PROXIMATELY CAUSED BY THE FAULT, CULPABILITY OR NEGLIGENCE OF THE APPLICANT IN THE PERFORMANCE OF OR IN ANY WAY RELATED TO OR RESULTING FROM THE PERMITTED WORK OVER AND ACROSS THE DRAINS OR DRAINAGE RIGHTS-OF-WAY UNDER THE JURISDICTION OF THE LAKE COUNTY DRAINAGE BOARD.

3. **IMPORTANT CLAUSE IN THIS PERMIT APPLICATION: THE APPLICANT FURTHER AGREES TO NOTIFY THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR IN WRITING AT LEAST FIVE (5) DAYS IN ADVANCE OF THE COMMENCEMENT OF THE WORK DESCRIBED IN THIS APPLICATION, AND WILL ALSO GIVE NOTICE TO THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR THE DAY PRECEDING THE COMPLETION OF THE WORK. FAILURE TO PROVIDE SUCH NOTICE MAY CAUSE REVOCATION OF THE PERMIT(S) AND APPLICANT MAY INCUR PENALTIES. PLEASE SEND NOTICES TO: LAKE COUNTY DRAINAGE BOARD, ATTN: LAKE COUNTY DRAINAGE BOARD SECRETARY, 2293 N. MAIN STREET, CROWN POINT, IN 46307**

4(a). THE APPLICANT AGREES TO AVOID CAUSING DAMAGE TO THE ESTABLISHED REGULATED DRAIN OR TO LANDOWNERS AFFECTED BY THE DRAIN, PURSUANT TO I.C.36-9-27-72(D).

4(b). FOR APPLICATIONS REGARDING THE PLACEMENT OF TEMPORARY STRUCTURES IN THE DRAIN'S EASEMENT (BOX III, PAGE 1), SUCH AS FENCES, TREES, GARDENS, SHEDS, ETC., THE APPLICANT UNDERSTANDS THAT, IF THE DRAINAGE BOARD GRANTS PERMISSION TO PLACE SAID TEMPORARY STRUCTURES WITHIN THE DRAINAGE EASEMENT, SAID PLACEMENT IS AT THE OWNER'S RISK. SHOULD THE COUNTY SURVEYOR/DRAINAGE BOARD, THEIR AGENTS, REPRESENTATIVES, CONTRACTORS OR OTHERS AT THE DIRECTION OF SAID COUNTY SURVEYOR/DRAINAGE BOARD, NEED ACCESS TO THE DRAIN OR EASEMENT AND THE STRUCTURE REQUIRES REMOVAL, THE OWNER SHALL REMOVE SAME AT THE OWNER'S EXPENSE. SHOULD THE OWNER FAIL TO REMOVE SAME IN A TIMELY FASHION, THEN THE COUNTY SURVEYOR/DRAINAGE BOARD SHALL CAUSE SAME TO BE REMOVED AND THE OWNER SHALL HAVE NO RECOURSE. AFTER COMPLETION OF THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S ACTIVITY, THE OWNER SHALL HAVE THE RIGHT TO REINSTALL THE TEMPORARY STRUCTURE IN COMPLIANCE WITH THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S REQUIREMENTS. THE COUNTY SURVEYOR/DRAINAGE BOARD MAY REQUIRE PAYMENT FROM THE OWNER FOR THE COST OF THE REMOVAL OR REPLACEMENT FOR ANY OF SAID ITEMS, PURSUANT TO STATUTE.

5. THE APPLICANT SHALL HAVE WORKMAN'S COMPENSATION INSURANCE AS REQUIRED BY STATE LAW.

6. THE APPLICANT SHALL PAY THE LAKE COUNTY SURVEYOR'S OFFICE AN APPLICATION FEE(S) PRIOR TO THE APPLICATION BEING CONSIDERED AT THE NEXT MONTHLY LAKE COUNTY DRAINAGE BOARD MEETING.

7. THE APPLICANT SHALL CARRY PUBLIC LIABILITY INSURANCE MEETING THE MAXIMUM DOLLAR LIMITS AS SPECIFIED IN I.C. 34-13-3-1 ET SEQ. OR ANY SUBSEQUENTLY ENACTED APPLICABLE STATUTES, AND SHALL LIST THE COUNTY OF LAKE, THE BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND AGENTS AS OTHER INSUREDS.

8. THIS PERMIT DOES NOT OBVIATE THE NEED TO OBTAIN ANY OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATION, IF REQUIRED.

9 BY SUBMITTING THIS APPLICATION, THE APPLICANT HEREBY STATES THE FOLLOWING:

A. **THE PROPOSED WORK MEETS ALL HYDRAULIC REQUIREMENTS THAT WILL PERMIT THE DRAIN TO FUNCTION PROPERLY. (I.C. 36-9-37-72 (C)).**
B. **THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY**
C. **NO HARMFUL POLLUTION IS LIKELY TO RESULT. (I.C. 36-9-27-17(C)).**

10. ENGINEERING PLANS, WHICH SUBSTANTIATE THE ABOVE STATEMENTS, MUST ACCOMPANY THIS APPLICATION. THESE PLANS MUST INCLUDE SUFFICIENT DETAIL TO ALLOW VERIFICATION OF THE ABOVE STATEMENTS. (THESE PLANS SHOULD GENERALLY INCLUDE DIMENSIONS, ELEVATIONS, CALCULATIONS, DESCRIPTIONS OR THE QUANTITIES AND TYPES OF MATERIAL TO BE USED, DISCHARGE CALCULATIONS AND OTHER RELEVANT INFORMATION.)

11. UPON COMPLETION OF THE WORK, "AS BUILT PLANS", SIGNED AND SEALED BY AN INDIANA REGISTERED PROFESSIONAL ENGINEER, SHALL BE FORWARDED TO THE LAKE COUNTY DRAINAGE BOARD WITHIN 30 DAYS.

12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: Brian Smith, Superintendent DATE: _____
(PRINT OR TYPE NAME)

_____
(SIGNATURE)

SUBMITTED FOR: Highland High School

ADDRESS 9145 Kennedy Ave

HIGHLAND, IN 46322

PHONE#: (219) 924-7400

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

Larry Schmidt

Kyle W. Ullmer D.H.

DATE: AUGUST 17, 2016 APPROVED: X DENIED: _____

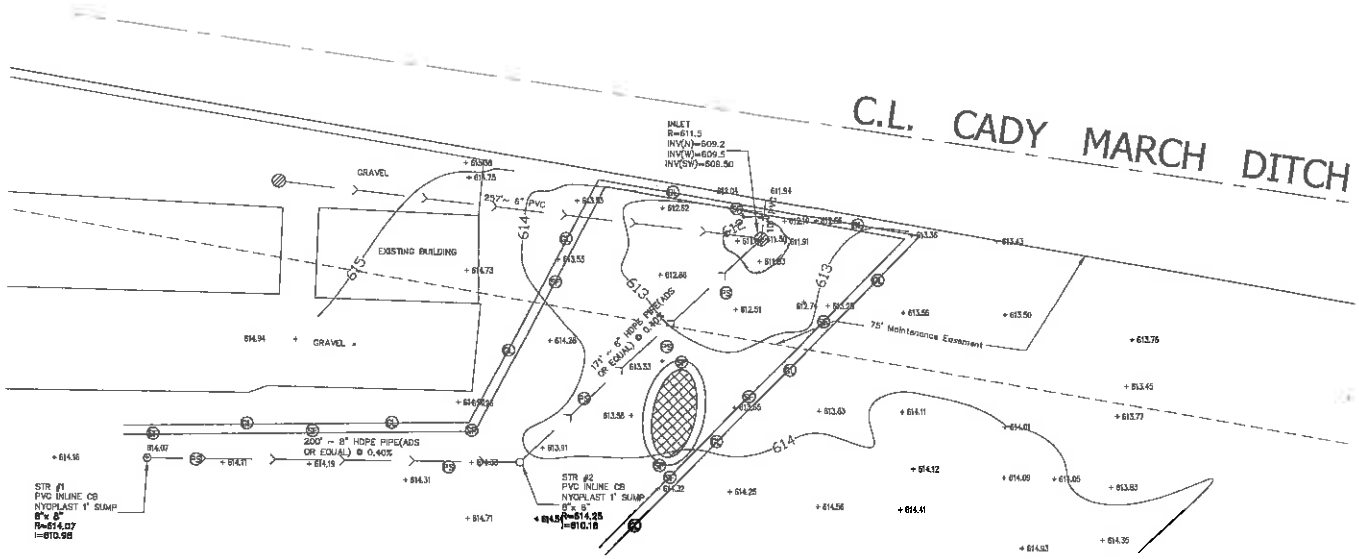
SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT* I]**

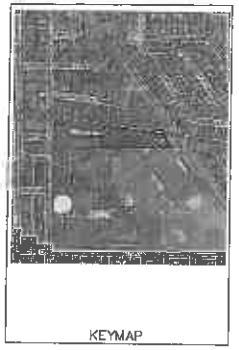
APPROVAL SHALL BE VALID FOR A PERIOD OF TWO YEARS FROM THE DATE OF APPROVAL. *SHOULD THE WORK AND ALL RELATED ACTIVITIES NOT BE COMPLETED BY THAT TIME, PETITIONER IS REQUIRED TO REAPPLY. SHOULD THE SCOPE OF WORK, PLANS AND SPECIFICATIONS, OR ACTIVITIES LISTED HEREIN BE MODIFIED, PETITIONER MUST NOTIFY THE LAKE COUNTY SURVEYOR AND THE DRAINAGE BOARD OF THESE MODIFICATIONS FOR REVIEW AND/OR APPROVAL/DENIAL BY THE COUNTY SURVEYOR/DRAINAGE BOARD.*

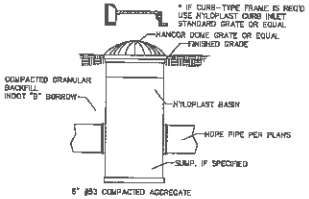
This map is to be used for tax purposes only. - Bill Emerson, Jr., Lake County Surveyor

Lake County, IN

Date Printed: August 5, 2016



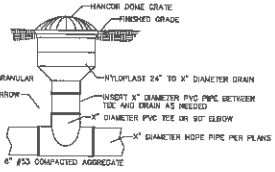




PVC DRAIN BASIN (NYLOPLAST OR EQUAL)

INSTALL PER MANUFACTURER'S GUIDELINES

NOT TO SCALE



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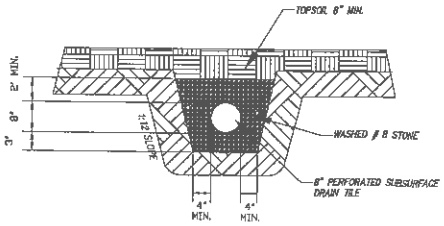
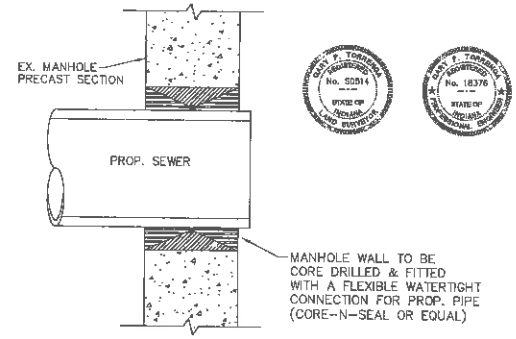


PERFORATED BEDDING DETAIL

NOT TO SCALE



PIPE CONNECTION DETAIL TO EXISTING MANHOLE

NOT TO SCALE

LEGEND:

EXISTING

- XXX — CONTOUR
- CATCH BASIN/INLET
- SEWER LINE

LEGEND:

PROPOSED

- SEWER LINE
- NYOPLAST CATCH BASIN
- CATCH BASIN

SWPPP LEGEND:

- SOIL STOCK PILE
- SILT FENCE (SEDIMENT FENCE)
- GRADE UNITS
- PERMANENT SEEDING

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel No.: (219) 838-6918
website: www.torrenga.com

Highland High School
9145 Kennedy Ave
Highland, IN 46322
Drainage Plan

REVISIONS
DATE: 08/05/2016

CLIENT: Town of Highland
SITE: 9145 Kennedy Ave
Highland, IN 46322

JOB NO. 2016-5026
SCALE: 1=30

SHEET
1.0

FILE NO. Z:\2016-5026 Highland Schools\Dwg\2016-5026 Highland HS & Middle School - SV.dwg 8/5/2016 3:46:41 PM CDT

TEMPORARY SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the street, and course after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of quick germination, growth, and time of year, see Table for temporary seeding recommendations

Fertilizer: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and lime as recommended by the soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker seeder, or by broadcasting, and cover to a depth as shown on Table for temporary seeding recommendations.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative cover is adequately established, re-seed if necessary.
2. Check for erosion damage after storm events and repair; re-seed and mulch if necessary.

Notes:
1. Vegetative Filter Strip: permanent or temporary, shall be done on all disturbed areas along both sides of the streets and course to reduce erosion where additional work is not scheduled.
2. Permanent Seeding, or sodding shall be done at the time of final landscaping.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:
Material
Typical, the darker, friable, loamy surface layer of soil found immediately below vegetation.

Storage Area
1. Free of storage, rock, and construction debris
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:
Salvaging and Stockpiling Topsoil
1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

Spreading Topsoil
1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:
1. Inspect daily.
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to berm, spread topsoil; repair immediately and revegetate.

PERMANENT SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the streets and course after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance see Table for permanent seeding recommendations

Fertilize: According to soil test, or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds

Application:
1. Fertilize and lime as recommended by soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or broadcasting, and cover to a depth of ¼ to ½ inch
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedlings; uniform density with nurse plants, legumes, and grasses well intermixed; green leaves, and the perennials remaining green throughout the summer, at least at the plant base.)
2. Plan to add fertilizer the following season according to soil test recommendations.
3. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or re-seeding, and mulching.
4. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding, and mulching.
5. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
6. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

Notes:
1. Permanent seeding optimum dates are March 1 to May 10 and August 10 to September 30, seeding done between May 10 to August 10 may require irrigation. Temporary seeding may be used as an alternative until preferred date for Permanent Seeding.
2. Retention/Detention area walls and base will be seeded as soon as possible using permanent seeding when possible, mulch or erosion control blankets are to be used on seeded areas to protect the soil from wind and water impact. Install silt fence around Retention/Detention area until seed is established.

SILT FENCE

Purpose: To retain sediment from small sloping disturbed areas by reducing the velocity of sheet flow

Requirements:
Trench: 6" minimum depth, flat bottom, filled with compacted soil to bury lower portion of fence fabric

Support: 2" x 2" hardwood stakes set at least 8-inches to 12-inches deep

Spacing of Support: 6-foot maximum on center

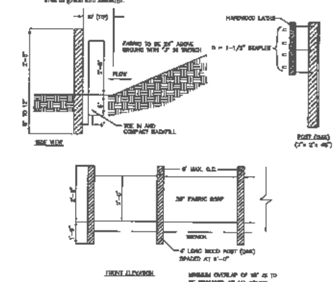
Fence height: A 2-ft. minimum or high enough so depth of impounded water does not exceed one half the height of the fence at any point along the line

Attachment: Hardwood laths secured to stakes with five (5) 1-1/2 inch staples

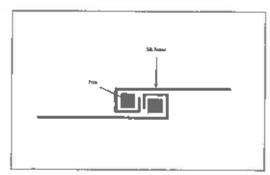
Fence Fabric: Spunbound polyester material with a fiberglass scrim or net sandwiched in between the layers. SS-100 Siltsaver or approved equal.

Installation:
1. Along the entire intended fence line, maintain contour as much as possible, dig a 6" deep flat bottom trench.
2. On the downslope side of the trench, drive the post 8" to 12" into the ground
3. Run a continuous length of fence fabric along upslope side of posts.
4. Fasten fence fabric to the upslope side of the stakes, extending it into the trench, and securing it with hardwood laths secured with five (5) 1-1/2 staples. The bottom 12" of the fence fabric shall be left unsecured to allow for entrenchment
5. If a joint is necessary, staple the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 6" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth.

Maintenance:
1. Inspect silt fence once every seven calendar days and 24 hours after each storm event of minimum of 1/2 inch rainfall.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion, as outlined by the manufacturer.
3. Remove deposited sediment when it reaches one-half the height of the fence at its lowest point or is causing the fabric to bulge.
4. Take care to avoid undermining the fence during clean out.
5. After watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize.



BELTED SILT RETENTION FENCE



Silt Fence Wrap Joint Detail

DUST CONTROL

Purpose:
To reduce wind-borne soil particles (dust) that may be transported and deposited in waterbodies, create a health hazard, and/or a visibility hazard

Requirements:
1. Dust control measures may be applied at any construction site, but should always be utilized for sites with dry, unvegetated soils that are exposed to wind or vehicle traffic that can potentially result in the generation of dust.
2. Where practical, locate haul roads and stockpiles away from existing residential housing, businesses, and public areas.
3. Limit construction equipment on haul roads to the extent practical. Construction equipment should maintain low speed of 15 miles per hour or less.
4. Trucks leaving a project site should be covered, especially where conditions may result in blowing of load material.
5. Minimize areas of disturbed, unvegetated soil exposed to traffic and wind.
6. Water quality impacts should always be considered when selecting a dust control treatment

Application:
1. Temporary Methods
   A. Watering/Irrigation
      Typically used for haul roads and heavy traffic areas.
      Used as an emergency treatment measure.

   B. Dust suppressants that are commercially available. Some products may be toxic to the environment. The level of toxicity and proximity to waterbodies and other unique resource areas should be considered when selecting a product. Products should be strictly applied according to the standards and specifications of the manufacturer and in accordance with applicable local, state, and federal regulations

Chlorides
- Used for unpaved construction haul roads.
- Applied as a liquid solution or dry granules/flakes.
- Application can inhibit growth.
- Runoff from treated areas can pollute waterbodies.

Resins
- Applied to haul roads, soil stockpiles, unvegetated soils, or used as a tackifier
- Water sheds off soils treated with these products
- Low environmental impact after application.
- Avoid introducing resins into waterbodies during application.

Polymer Products
- Used on soil stockpiles, unvegetated soils
- May also be applicable to haul roads.
- Apply with truck or hydroseeding machine
- Use restricted to anionic polymer mixtures and shall have less than or equal to .05 percent free acrylamide monomer by weight as established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency.

Lignosulfonates
- Used for haul roads.
- Water soluble and could lose bonding capability in heavy rain.
- Environmentally friendly.

Tillage
- Large open disturbed areas
- Used as an emergency treatment measure.
- Relatively flat areas of less than two percent.
- Chisel plows with shanks spaced 12 to 18 inches apart, straight-toothed harrows, or similar tillage equipment.
- Best if implemented before soil begins to blow.

Mulch
- Disturbed areas
- Effective, temporary measure

Temporary Vegetative Cover
- Disturbed areas.
- Effective, temporary measure

Physical Barriers
- Emergency treatment measure.
- Solid board fences, snow fences, burlap fences, crate walls, bales of hay, etc.
- Used to control air currents and soil migration.

Street Sweeping
- Paved areas.
- Street sweeper, vacuum truck, or a bucket and loader.

Application:
Prepare site for the application method or product that was selected for dust control

Maintenance:
1. Inspect daily.
2. Repeat treatments as needed when using temporary dust control methods.
3. Commercial products should be used in accordance with the recommendations of the manufacturer.

TORRENGA ENGINEERING, INC.
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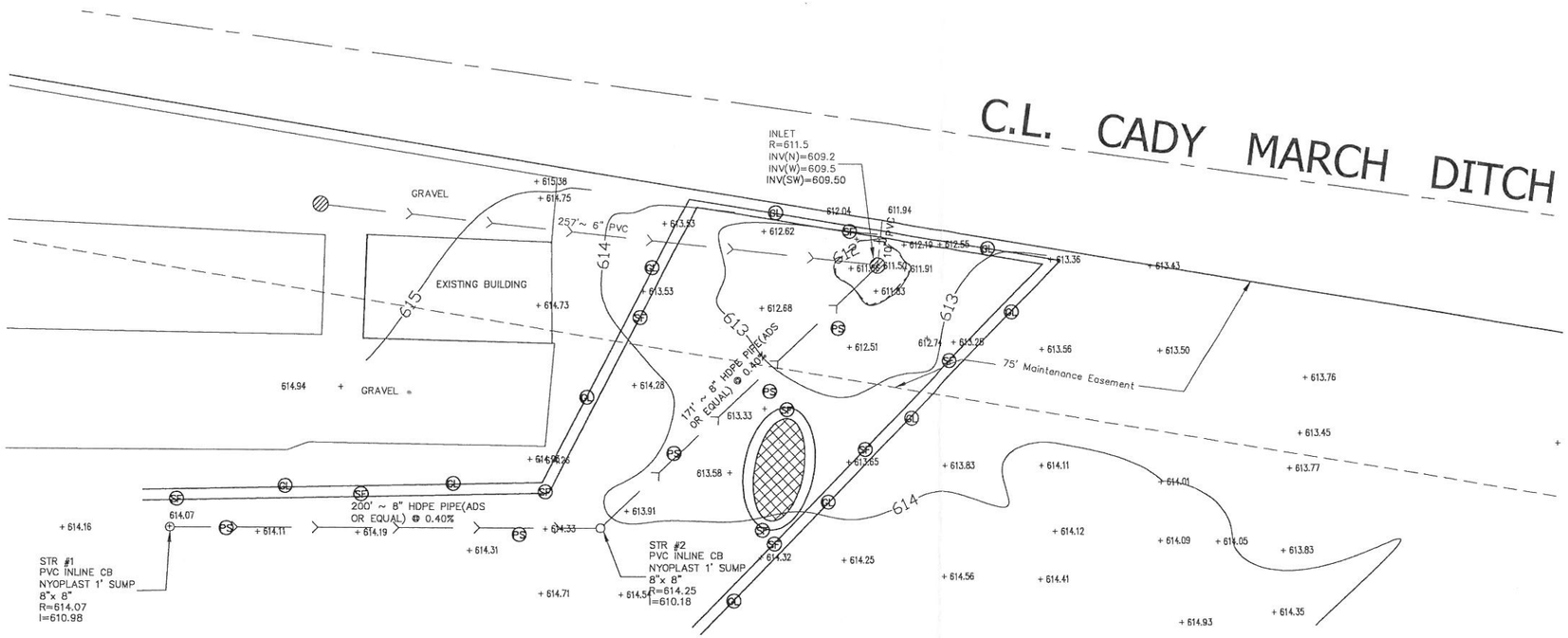
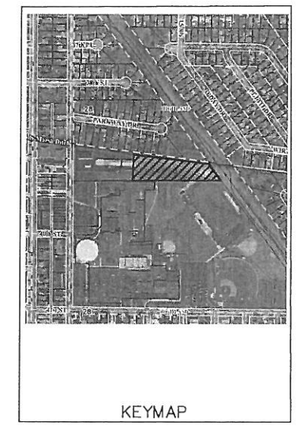
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918 website: www.torrenga.com

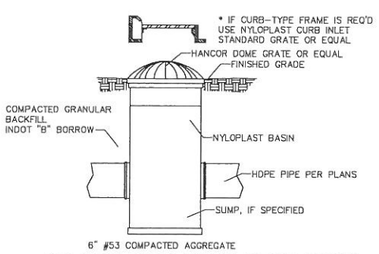
Highland High School
9145 Kennedy Ave
Highland, IN 46322
SWPPP DETAILS

REVISIONS:
DATE: 08/05/2016

CLIENT: School Town of Highland, 9145 Kennedy Ave, Highland, IN 46322
JOB NO: 2016-3026
SCALE: NONE
SHEET

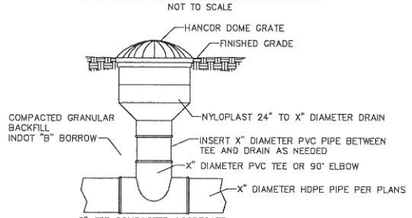






PVC DRAIN BASIN (NYLOPLAST OR EQUAL)

INSTALL PER MANUFACTURER'S GUIDELINES
NOT TO SCALE



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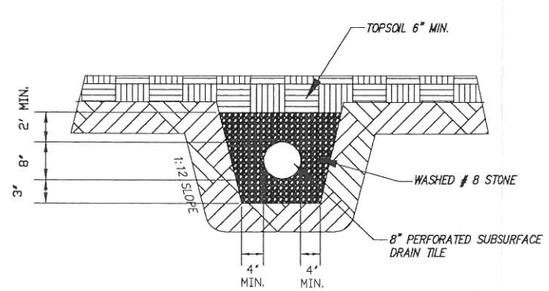

PERFORATED BEDDING DETAIL

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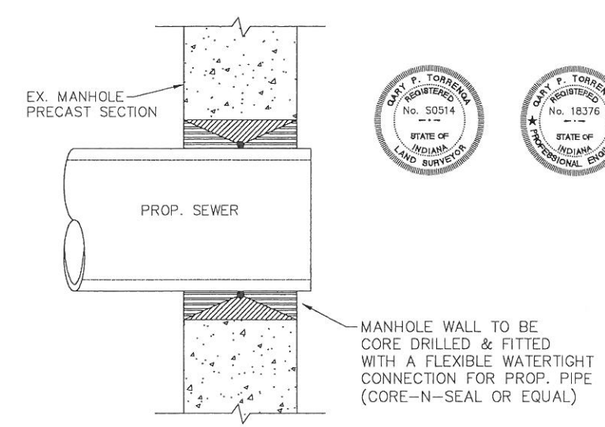


PIPE CONNECTION DETAIL

TO EXISTING MANHOLE

NOT TO SCALE

QUART P. TORRENGA REGISTERED No. S0514 STATE OF INDIANA LAND SURVEYOR

QUART P. TORRENGA REGISTERED No. 18376 STATE OF INDIANA PROFESSIONAL ENGINEER

LEGEND:

EXISTING

—XXX— – CONTOUR

– CATCH BASIN/INLET

– SEWER LINE

LEGEND:

PROPOSED

– SEWER LINE

– NYOPLAST CATCH BASIN

– CATCH BASIN

SWPPP LEGEND:

– SOIL STOCK PILE

SF – SILT FENCE (SEDIMENT FENCE)

GL – GRADE LIMITS

PS –PERMANENT SEEDING

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918
website: www.torrenga.com

Highland High School
9145 Kennedy Ave
Highland, IN 46322
Drainage Plan

REVISIONS:
DATE: 08/05/2016

CLIENT:
School Town of Highland
9145 Kennedy Ave
Highland, IN 46322

JOB NO: 2016-5026

SCALE: 1=30

SHEET
1.0

FILE NO: Z:\2016-5026 Highland Schools\dwg\2016-5026 Highland HS & Middle School - BV1.dwg 8/5/2016 3:06:41 PM CDT

TEMPORARY SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of quick germination, growth, and time of year, see Table for temporary seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and lime as recommended by the soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or by broadcasting, and cover to a depth as shown on Table for temporary seeding recommendations.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative stands are adequately established; re-seed if necessary.
2. Check for erosion damage after storm events and repair; re-seed and mulch if necessary.

Notes:
1. Vegetative Filter Strip: permanent or temporary, shall be done on all disturbed areas along both sides of the streets and courts to reduce erosion where additional work is not scheduled.
2. Permanent Seeding: or sodding shall be done at the time of final landscaping.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:
Material
Typically the darker, friable, loamy surface layer of soil found immediately below vegetation.

Storage Area
1. Free of stumps, rock, and construction debris.
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:
Salvaging and Stockpiling Topsoil
1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

Spreading Topsoil
1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:
1. Inspect daily.
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and revegetate.

PERMANENT SEEDING

Purpose: To stabilize disturbed areas especially along both sided of the streets and courts after final grading work is completed and where additional work is not scheduled.

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied.

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance see Table for permanent seeding recommendations.

Fertilize: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 - 2 tons/acre straw. Straw must be dry, unchopped and free of undesirable seeds.

Application:
1. Fertilize and lime as recommended by soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or broadcasting, and cover to a depth of ¼ to ½ inch.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedling; uniform density with nurse plants, legumes, and grasses well intermixed; green leaves; and the perennials remaining green throughout the summer, at least at the plant base.)
2. Plan to add fertilizer the following seasons according to soil test recommendations.
3. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or re-seeding, and mulching.
4. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding, and mulching.
5. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
6. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

Notes:
1. Permanent seeding optimum dates are March 1 to May 10 and August 10 to September 30, seeding done between May 10 to August 10 may require irrigation. Temporary seeding may be used as an alternative until preferred date for Permanent Seeding.
2. Retention/Detention area walls and base will be seeded as soon as possible using permanent seeding when possible, mulch or erosion control blankets are to be used on seeded areas to protect the soil from wind and water impact. Install silt fences around Retention/Detention area until seed is established.

SILT FENCE

Purpose: To retain sediment from small sloping disturbed areas by reducing the velocity of sheet flow.

Requirements:
Trench: 6" minimum depth, flat bottom , filled with compacted soil to bury lower portion of fence fabric.

Support : 2" x 2" hardwood stakes set at least 8-inches to 12-inches deep.

Spacing of Support: 6-foot maximum on center.

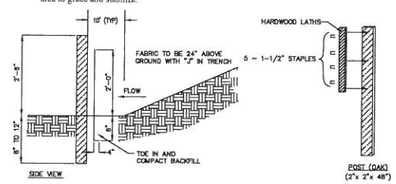
Fence height: A 2-ft. minimum or high enough so depth of impounded water does not exceed one-half the height of the fence at any point along the line.

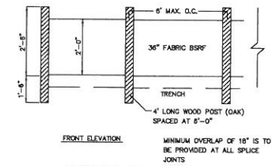
Attachement: Hardwood laths secured to stakes with five (5) 1-1/2 inch staples.

Fence Fabric: Spunbound polyester material with a fiberglass scrim or net sandwiched in between the layers, **SS-700 SiltSaver** or approved equal.

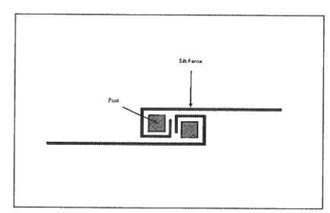
Installation:
1. Along the entire intended fence line, maintain contour as much as possible, dig a 6" deep flat bottom trench.
2. On the downslope side of the trench, drive the post 8" to 12" into the ground.
3. Run a continuous length of fence fabric along upslope side of posts.
4. Fasten fence fabric to the upslope side of the stakes, extending it into the trench, and securing it with hardwood laths secured with five (5) 1-1/2 staples. The bottom 12" of the fence fabric shall be left unsecured to allow for entrenchment.
5. If a joint is necessary, staple the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 6" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth.

Maintenance:
1. Inspect silt fence once every seven calendar days and 24 hours after each storm event of minimum of 1/2 inch rainfall.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion, as outlined by the manufacturer.
3. Remove deposited sediment when it reaches one-half the height of the fence at its lowest point or is causing the fabric to bulge.
4. Take care to avoid undermining the fence during clean out.
5. After watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize.





BELTED SILT RETENTION FENCE



Silt Fence Wrap Joint Detail

DUST CONTROL

Purpose:
To reduce wind-borne soil particles (dust) that may be transported and deposited in waterbodies, create a health hazard, and/or a visibility hazard.

Requirements:
1. Dust control measures may be applied at any construction site, but should always be utilized for sites with dry, unvegetated soils that are exposed to wind or vehicle traffic that can potentially result in the generation of dust.
2. Where practical, locate haul roads and stockpiles away from existing residential housing, businesses, and public areas.
3. Limit construction equipment on haul roads to the extent practical. Construction equipment should maintain low speed of 15 miles per hour or less.
4. Trucks leaving a project site should be covered, especially where conditions may result in blowing of haul material.
5. Minimize areas of disturbed, unvegetated soil exposed to traffic and wind.
6. Water quality impacts should always be considered when selecting a dust control treatment.

Application:
1. Temporary Methods
   A. Watering/Irrigation
      Typically used for haul roads and heavy traffic areas.
      Used as an emergency treatment measure.

   B. Dust suppressants that are commercially available. Some products may be toxic to the environment. The level of toxicity and proximity to waterbodies and other unique resource areas should be considered when selecting a product. Products should be strictly applied according to the standards and specifications of the manufacturer and in accordance with applicable local, state, and federal regulations.

Chlorides
- Used for unpaved construction haul roads.
- Applied as a liquid solution or dry granules/flakes.
- Application can inhibit growth.
- Runoff from treated areas can pollute waterbodies.

Resins
- Applied to haul roads, soil stockpiles, unvegetated soils, or used as a tackifier.
- Water sheds off soils treated with these products.
- Low environmental impact after application.
- Avoid introducing resins into waterbodies during application.

Polymer Products
- Used on soil stockpiles, unvegetated soils.
- May also be applicable to haul roads.
- Apply with truck or hydroseeding machine.
- Use restricted to anionic polymer mixtures and shall have less than or equal to .05 percent free acrylamide monomer by weight as established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency.

Lignin sulfonates
- Used for haul roads.
- Water soluble and could lose bonding capability in heavy rain.
- Environmentally friendly.

Tillage
- Large open disturbed areas.
- Used as an emergency treatment measure.
- Relatively flat areas of less than two percent.
- Chisel plows with shanks spaced 12 to 18 inches apart, straight-toothed harrows, or similar tillage equipment.
- Best if implemented before soil begins to blow.

Mulch
- Disturbed areas.
- Effective, temporary measure.

Temporary Vegetative Cover
- Disturbed areas.
- Effective, temporary measure.

Physical Barriers
- Emergency treatment measure.
- Solid board fences, snow fences, burlap fences, crate walls, bales of hay, etc.
- Used to control air currents and soil migration.

Street Sweeping
- Paved areas.
- Street sweeper, vacuum truck, or a bucket end loader.

Application:
Prepare site for the application method or product that was selected for dust control.

Maintenance:
1. Inspect daily.
2. Repeat treatments as needed when using temporary dust control methods.
3. Commercial products should be used in accordance with the recommendations of the manufacturer.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918 website: www.torrenga.com

Highland High School
9145 Kennedy Ave
Highland, IN 46322
SWPPP DETAILS

REVISIONS:
DATE: 08/05/2016

CLIENT:
School Town of Highland
9145 Kennedy Ave
Highland, IN 46322

JOB NO: 2016-5026
SCALE: 1=30

SHEET
2.0

FILE NO:Z:\2016-5026 Highland Schools\dwg\2016-5026 Highland HS & Middle School - BV1.dwg 8/5/2016 3:06:41 PM CDT

Torrenga Engineering, Inc.

REGISTERED PROFESSIONAL ENGINEERS
907 RIDGE ROAD
MUNSTER, INDIANA 46321

www.torrenga.com **Office (219) 836-8918** **Fax (219) 836-1138**

August 5, 2016

RECEIVED
AUG 08 2016
LAKE COUNTY SURVEYOR

Mr. Bill Emerson Jr.
Lake County Surveyor
2293 N. Main St.
Crown Point, IN 46307

Re: Southridge Elementary School, Highland, IN

Dear Mr. Emerson Jr:

Southridge Elementary School located at 9221 Johnston St in Highland, Indiana has a large open field located between the north wall of the school and the Cady Marsh Ditch. The field is used for athletics by the school children. The Cady Marsh Ditch's top of bank elevation is higher than the elevation of the fields causing flooding during all rainstorm events. The maintenance department for the school is unable to cut the grass for days after any rain event. Our request is to install a perforated pipe connected to an outlet structure with a flap gate to prevent water from backing up when the ditch fills. The discharge from the outlet pipe will drain into the Cady Marsh Ditch.

The project contacts are as follows:

Owner/Developer
Mr. Brian Smith, Superintendent
Town of Highland School Corporation
9145 Kennedy Ave
Highland, IN 46322
(219)924-7400

Engineer:
Torrenga Engineering, Inc.
907 Ridge Road
Munster, Indiana 46321
(219)836-8918

Sincerely,

Donald C. Torrenga
Torrenga Engineering Inc.

APPLICATION NO. 301-8-16-I-II-III

APPLICATION FOR PERMISSION TO PERFORM THE FOLLOWING TASK(S) WITHIN A REGULATED DRAIN
[PLEASE CHECK THE APPROPRIATE BOX]

[X] **I. WORK WITHIN A REGULATED DRAIN**

[X] **II. CONNECT/DISCHARGE INTO THE DRAIN/EASEMENT**

[X] **III. PLACE TEMPORARY/PERMANENT STRUCTURE IN THE DRAIN/EASEMENT**

[ ] **IV. REDUCE EASEMENT FROM SEVENTY-FIVE (75) FEET**

TO THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY, INDIANA;

(Name) School Town of Highland, specifically Southridge Elementary School

HEREINAFTER CALLED APPLICANT, HEREBY MAKES APPLICATION TO THE LAKE COUNTY DRAINAGE BOARD TO PERFORM THE ABOVE DESCRIBED ACTIVITY WITHIN A REGULATED DRAIN AND/OR THE EASEMENT FOR A REGULATED DRAIN WHICH IS PART OF THE DRAINAGE SYSTEM FOR LAKE COUNTY, INDIANA.

THE LOCATION IS AS FOLLOWS:

NAME OF WATERWAY: Cady Marsh Ditch

SECTION(s): 27 TOWNSHIP: 36 RANGE: 9

ADDRESS OR DESCRIPTION OF LOCATION 9221 JOHNSTON ST
HIGHLAND, IN 46322

THE REQUEST IS TO CONSIST OF THE FOLLOWING ACTIVITIES:

Perforated pipe will be installed under the athletic fields. With a discharge pipe to Cady Marsh Ditch.

THE PURPOSE OF THE REQUEST IS TO:

To elevate drainage problems at the athletic fields at Southridge Elementary School in Highland, IN.

1. THE APPLICANT HEREBY AGREES TO RESTORE THE LAND, DRAINAGE DITCHES AND ALL OTHER SURFACES AND/OR STRUCTURES WITHIN THE DITCH AND REGULATED DRAIN EASEMENT TO A CONDITION AS GOOD OR BETTER THAN THEY WERE PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE APPLICANT SHALL AND WILL INDEMNIFY AND HOLD HARMLESS ANY AND ALL COUNTY ENTITIES, INCLUDING BUT NOT LIMITED TO THE COUNTY OF LAKE, BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND/OR AGENTS FROM AND AGAINST ANY AND ALL DAMAGES, INJURIES, LOSSES, DEMANDS, OR COSTS PROXIMATELY CAUSED BY THE FAULT, CULPABILITY OR NEGLIGENCE OF THE APPLICANT IN THE PERFORMANCE OF OR IN ANY WAY RELATED TO OR RESULTING FROM THE PERMITTED WORK OVER AND ACROSS THE DRAINS OR DRAINAGE RIGHTS-OF-WAY UNDER THE JURISDICTION OF THE LAKE COUNTY DRAINAGE BOARD.

3. **IMPORTANT CLAUSE IN THIS PERMIT APPLICATION: THE APPLICANT FURTHER AGREES TO NOTIFY THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR IN WRITING AT LEAST FIVE (5) DAYS IN ADVANCE OF THE COMMENCEMENT OF THE WORK DESCRIBED IN THIS APPLICATION, AND WILL ALSO GIVE NOTICE TO THE LAKE COUNTY DRAINAGE BOARD OR THE LAKE COUNTY SURVEYOR THE DAY PRECEDING THE COMPLETION OF THE WORK. FAILURE TO PROVIDE SUCH NOTICE MAY CAUSE REVOCATION OF THE PERMIT(S) AND APPLICANT MAY INCUR PENALTIES. PLEASE SEND NOTICES TO: LAKE COUNTY DRAINAGE BOARD, ATTN: LAKE COUNTY DRAINAGE BOARD SECRETARY, 2293 N. MAIN STREET, CROWN POINT, IN 46307**

4(a). THE APPLICANT AGREES TO AVOID CAUSING DAMAGE TO THE ESTABLISHED REGULATED DRAIN OR TO LANDOWNERS AFFECTED BY THE DRAIN, PURSUANT TO I.C.36-9-27-72(D).

4(b). FOR APPLICATIONS REGARDING THE PLACEMENT OF TEMPORARY STRUCTURES IN THE DRAIN'S EASEMENT (BOX III, PAGE 1), SUCH AS FENCES, TREES, GARDENS, SHEDS, ETC., THE APPLICANT UNDERSTANDS THAT, IF THE DRAINAGE BOARD GRANTS PERMISSION TO PLACE SAID TEMPORARY STRUCTURES WITHIN THE DRAINAGE EASEMENT, SAID PLACEMENT IS AT THE OWNER'S RISK. SHOULD THE COUNTY SURVEYOR/DRAINAGE BOARD, THEIR AGENTS, REPRESENTATIVES, CONTRACTORS OR OTHERS AT THE DIRECTION OF SAID COUNTY SURVEYOR/DRAINAGE BOARD, NEED ACCESS TO THE DRAIN OR EASEMENT AND THE STRUCTURE REQUIRES REMOVAL, THE OWNER SHALL REMOVE SAME AT THE OWNER'S EXPENSE. SHOULD THE OWNER FAIL TO REMOVE SAME IN A TIMELY FASHION, THEN THE COUNTY SURVEYOR/DRAINAGE BOARD SHALL CAUSE SAME TO BE REMOVED AND THE OWNER SHALL HAVE NO RECOURSE. AFTER COMPLETION OF THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S ACTIVITY, THE OWNER SHALL HAVE THE RIGHT TO REINSTALL THE TEMPORARY STRUCTURE IN COMPLIANCE WITH THE COUNTY SURVEYOR'S/DRAINAGE BOARD'S REQUIREMENTS. THE COUNTY SURVEYOR/DRAINAGE BOARD MAY REQUIRE PAYMENT FROM THE OWNER FOR THE COST OF THE REMOVAL OR REPLACEMENT FOR ANY OF SAID ITEMS, PURSUANT TO STATUTE.

5. THE APPLICANT SHALL HAVE WORKMAN'S COMPENSATION INSURANCE AS REQUIRED BY STATE LAW.

6. THE APPLICANT SHALL PAY THE LAKE COUNTY SURVEYOR'S OFFICE AN APPLICATION FEE(S) PRIOR TO THE APPLICATION BEING CONSIDERED AT THE NEXT MONTHLY LAKE COUNTY DRAINAGE BOARD MEETING.

7. THE APPLICANT SHALL CARRY PUBLIC LIABILITY INSURANCE MEETING THE MAXIMUM DOLLAR LIMITS AS SPECIFIED IN I.C. 34-13-3-1 ET SEQ. OR ANY SUBSEQUENTLY ENACTED APPLICABLE STATUTES, AND SHALL LIST THE COUNTY OF LAKE, THE BOARD OF COMMISSIONERS OF THE COUNTY OF LAKE, THE LAKE COUNTY DRAINAGE BOARD, LAKE COUNTY SURVEYOR, ITS ELECTED OFFICIALS, ITS APPOINTED OFFICIALS, ITS OFFICERS, ITS EMPLOYEES, ITS DEPARTMENTS, ITS BOARDS AND AGENTS AS OTHER INSUREDS.

8. THIS PERMIT DOES NOT OBVIATE THE NEED TO OBTAIN ANY OTHER FEDERAL, STATE AND/OR LOCAL AUTHORIZATION, IF REQUIRED.

9 BY SUBMITTING THIS APPLICATION, THE APPLICANT HEREBY STATES THE FOLLOWING:

A. **THE PROPOSED WORK MEETS ALL HYDRAULIC REQUIREMENTS THAT WILL PERMIT THE DRAIN TO FUNCTION PROPERLY. (I.C. 36-9-37-72 (C)).**
B. **THE REGULATED DRAIN IS ADEQUATE TO HANDLE THE ADDITIONAL FLOW OF WATER, IF ANY**
C. **NO HARMFUL POLLUTION IS LIKELY TO RESULT. (I.C. 36-9-27-17(C)).**

10. ENGINEERING PLANS, WHICH SUBSTANTIATE THE ABOVE STATEMENTS, MUST ACCOMPANY THIS APPLICATION. THESE PLANS MUST INCLUDE SUFFICIENT DETAIL TO ALLOW VERIFICATION OF THE ABOVE STATEMENTS. (THESE PLANS SHOULD GENERALLY INCLUDE DIMENSIONS, ELEVATIONS, CALCULATIONS, DESCRIPTIONS OR THE QUANTITIES AND TYPES OF MATERIAL TO BE USED, DISCHARGE CALCULATIONS AND OTHER RELEVANT INFORMATION.)

11. UPON COMPLETION OF THE WORK, "AS BUILT PLANS", SIGNED AND SEALED BY AN INDIANA REGISTERED PROFESSIONAL ENGINEER, SHALL BE FORWARDED TO THE LAKE COUNTY DRAINAGE BOARD WITHIN 30 DAYS.

12. THE DRAINAGE BOARD RESERVES THE RIGHT TO WAIVE ANY OF THE REQUIREMENTS STATED HEREON.

SUBMITTED: Brian Smith, Superintendent DATE: _____
(PRINT OR TYPE NAME)

_____
(SIGNATURE)

SUBMITTED FOR: Southridge Elementary School

ADDRESS 9221 Johnston St.

HIGHLAND, IN 46322

PHONE#: (219)924-7400

(THIS SECTION FOR DRAINAGE BOARD USE ONLY)

LAKE COUNTY DRAINAGE BOARD

Gerry Scheub D

Kyle W. Allen Sr. D.H.

DATE: August 17, 2016 APPROVED: X DENIED: _____

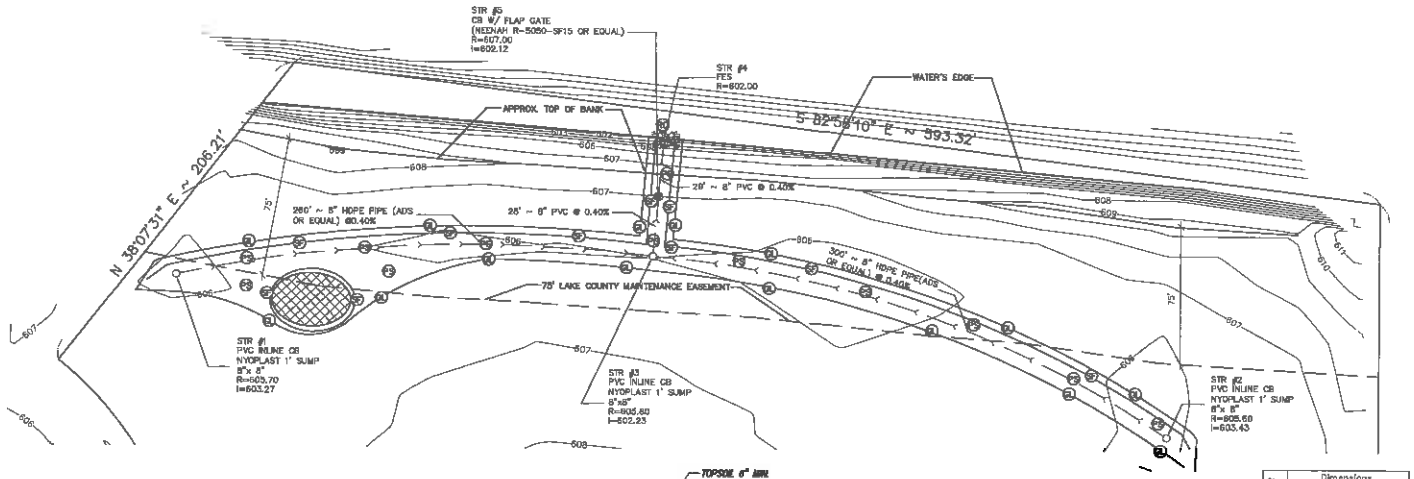
SHOULD ANY APPLICATIONS BE SUBMITTED BY AN AGENT, CONSULTANT, ENGINEER, REPRESENTATIVE OR OTHERS PURPORTING TO ACT AS THE OWNER, THEN A POWER OF ATTORNEY SHALL BE DULY EXECUTED AND ATTACHED TO THESE APPLICATIONS. **[*SEE ATTACHMENT* I]**

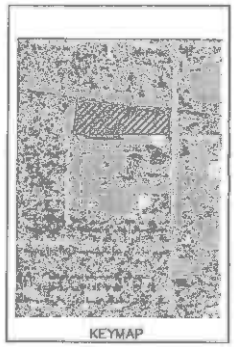
APPROVAL SHALL BE VALID FOR A PERIOD OF TWO YEARS FROM THE DATE OF APPROVAL. *SHOULD THE WORK AND ALL RELATED ACTIVITIES NOT BE COMPLETED BY THAT TIME, PETITIONER IS REQUIRED TO REAPPLY. SHOULD THE SCOPE OF WORK, PLANS AND SPECIFICATIONS, OR ACTIVITIES LISTED HEREIN BE MODIFIED, PETITIONER MUST NOTIFY THE LAKE COUNTY SURVEYOR AND THE DRAINAGE BOARD OF THESE MODIFICATIONS FOR REVIEW AND/OR APPROVAL/DENIAL BY THE COUNTY SURVEYOR/DRAINAGE BOARD.*

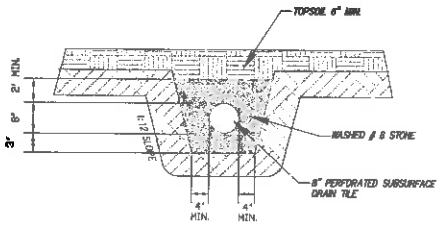
Lake County, IN

Date Printed: August 5, 2016

This map is to be used for tax purposes only. - Bill Emerson, Jr., Lake County Surveyor



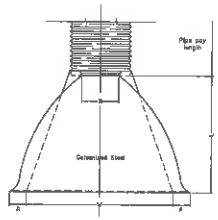


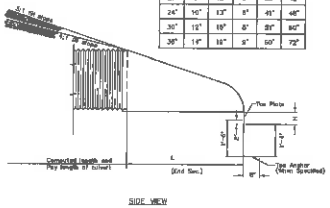


PERFORATED BEDDING DETAIL

NOT TO SCALE

Pipe Dia.	Dimensions				
	A	B	H	L	W
12"	4"	9"	8"	21"	24"
15"	7"	9"	8"	28"	30"
18"	8"	10"	8"	34"	36"
21"	9"	12"	8"	38"	42"
24"	10"	13"	8"	43"	48"
30"	12"	18"	8"	52"	60"
36"	14"	18"	8"	60"	72"





METAL END SECTION

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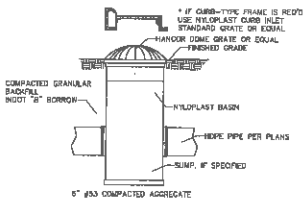
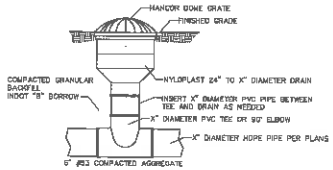


PVC DRAIN BASIN (NYLOPLAST OR EQUAL)

INSTALL PER MANUFACTURER'S GUIDELINES

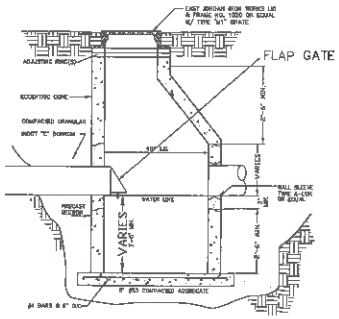
NOT TO SCALE



PVC INLINE DRAIN (NYLOPLAST OR EQUAL)

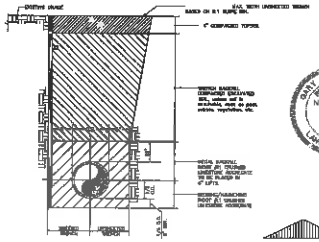
INSTALL PER MANUFACTURER'S GUIDELINES

NOT TO SCALE



TYPE "A" CATCH BASIN

NOT TO SCALE



PIPE BEDDING DETAIL FOR TRENCH IN GRASS AREAS

NOT TO SCALE

GARY P. TORRENGA
REGISTERED
No. 50014
STATE OF INDIANA
LAND SURVEYOR

GARY P. TORRENGA
REGISTERED
No. 15376
STATE OF INDIANA
PROFESSIONAL ENGINEER

LEGEND:

EXISTING

—XXX— CONTOUR

LEGEND:

PROPOSED

— SEWER LINE

— NYOPLAST CATCH BASIN

— CATCH BASIN

SWPPP LEGEND:

- SOIL STOCK PILE
- ROCK CHUTE
- SILT FENCE (SEDIMENT FENCE)
- GRADE LIMITS
- PERMANENT SEEDING

NORTH

GRAPHIC SCALE

(30 FEET)
1 inch = 60 ft.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8818 website: www.torrenga.com

Southridge Elementary School
9221 Johnston St.
Highland, IN 46322
Drainage Plan

REVISIONS:

DATE: 08/05/2016

CLIENT:
School Town of Highland
9145 Kennedy Avenue
Highland, IN 46322

JOB NO. 2016-5926

SCALE: 1=30

SHEET
1.0

FILE NO: 2016-5926 Highland Schools\dwg\2016-5926 Southridge Elementary.dwg 8/23/2016 12:43:30 PM CDT

TEMPORARY SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the streets and courts after final grading work is completed and where additional work is not scheduled

Requirements:
Site and seedbed preparation Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of quick germination, growth, and time of year, see Table for temporary seeding recommendations.

Fertilizer: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 – 2 tons/acre straw Straw must be dry, unchopped and free of undesirable seeds

Application:
1. Fertilize and lime as recommended by the soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope.
3. Apply seed uniformly with a drill or cultipacker-seeder, or by broadcasting, and cover to a depth as shown on Table for temporary seeding recommendations.
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative stands are adequately established, re-seed if necessary.
2. Check for erosion damage after storm events and repair; re-seed and mulch if necessary

Notes:
1. Vegetative Filter Strip permanent or temporary, shall be done on all disturbed areas along both sides of the streets and courts to reduce erosion where additional work is not scheduled.
2. Permanent Seeding; or sodding shall be done at the time of final landscaping

RIPRAP

Purpose: To protect slopes, stream banks and channels, which are subject to erosion by water

Requirements:
Rock: Hard, angular, weather-resistant and well graded stone, the largest pieces should not exceed two times the specified stone diameter.
Thickness: Two times the specified stone diameter but not greater than 3 inches.
Filter: Under permanent riprap install geotextile fabric for stabilization and filtration

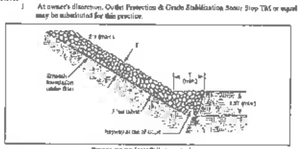
Installation:
Subgrade Preparation:
1. Remove brush, trees, stumps, and other debris.
2. Excavate only deep enough for both filter and riprap
3. Cut a keyway in stable material at the base of the slope to reinforce the toe.

Filter Placement:
1. Place geotextile fabric on a smoothed foundation, overlap the edges at least 12 inches and secure with anchor pins spaced every 3 feet along the overlap

RipRap Placement:
1. Immediately after installing the filter, add the riprap to full thickness in one operation
2. If fabric is damaged, remove the riprap and repair by adding another layer of fabric, overlapping the damaged area by 12 inches.
3. Place smaller rock in voids to form a dense, uniform, well-graded mass

Maintenance:
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially downstream or downslope

Note:
1. At owner's discretion, Outlet Protection & Grade Stabilization Scour Stop TM or equal may be substituted for this practice.



Proper riprap installation on a slope.

PERMANENT SEEDING

Purpose: To stabilize disturbed areas especially along both sides of the streets and courts after final grading work is completed and where additional work is not scheduled

Requirements:
Site and seedbed preparation: Graded, and lime and fertilizer applied

Seed Selected:
Selected on the basis of Site Conditions, Soil PH, intended land use, and expected level of maintenance see Table for permanent seeding recommendations

Fertilizer: According to soil test or use 600 lbs/acre 12-12-12 analysis or equivalent.

Mulch: 1.5 – 2 tons/acre straw Straw must be dry, unchopped and free of undesirable seeds

Application:
1. Fertilize and lime as recommended by soil test.
2. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4" deep with a disk or rake operated across the slope
3. Apply seed uniformly with a drill or cultipacker-seeder, or broadcasting, and cover to a depth of ¼ to ½ inch
4. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedlings, uniform density with nurse plants, legumes, and grasses well intermixed, green leaves, and the perennials remaining green throughout the summer, at least at the plant base.)
2. Plan to add fertilizer the following season according to soil test recommendations.
3. Repair damaged, bare or sparse areas by filling any gullies, refertilizing, over- or re-seeding, and mulching
4. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching, then repair the affected area either by over-seeding or by re-seeding, and mulching.
?. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
?. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations

Notes:
1. Permanent seeding optimum dates are March 1 to May 10 and August 10 to September 30, seeding done between May 10 to August 10 may require irrigation. Temporary seeding may be used as an alternative until preferred date for Permanent Seeding
2. Retention/Detention area walls and base will be seeded as soon as possible using permanent seeding where possible, mulch or erosion control blankets are to be used on seeded areas to protect the soil from wind and water impact. Install silt fences around Retention/Detention area until seed is established.

ROCK CHUTE

Purpose: To protect slopes, stream banks and channels, which are subject to erosion. Where run off velocity is great, at the outlet pipe of a detention basin, channel or culvert

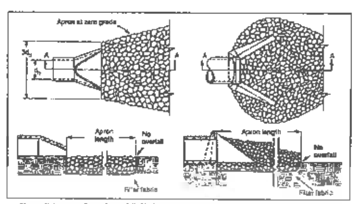
Requirements:
Rock: Hard angular, weather-resistant and well graded stone, the largest pieces should not exceed two times the specified stone diameter
Thickness: 12" minimum or two times the specified stone diameter, which ever is greater
Filter: Under permanent riprap install geotextile fabric for stabilization and filtration

Installation:
Subgrade Replacement.
1. Remove brush, trees, stumps, and other debris.
2. Excavate only deep enough for both filter and riprap

Filter Placement:
1. Place geotextile fabric on a smoothed foundation, overlap the edges at least 12 inches and secure with anchor pins spaced every 3 feet along the overlap.
2. If fabric is damaged, remove the riprap and repair damaged area by 12 inches.

RipRap Replacement
1. Immediately after installing the filter, add the riprap to full thickness in one operation to the design elevation, and extend riprap to the top of the bank
2. Place smaller rock in voids to form a dense, uniform, well-graded mass.
3. Blend the riprap smoothly to the surrounding grade.
4. Stabilize all disturbed areas immediately following installation

Maintenance:
1. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially down stream or down slope



Pipe outlet aprons for a channel (left) that is not well defined and (right) that is well defined.

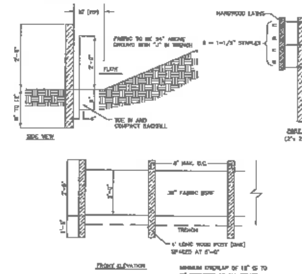
SILT FENCE

Purpose: To retain sediment from small sloping disturbed areas by reducing the velocity of sheet flow

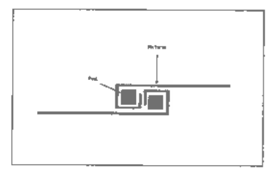
Requirements:
Trench: 6" minimum depth, flat bottom, filled with compacted soil to bury lower portion of fence fabric
Support: 2" x 2" hardwood stakes set at least 8-inches to 12-inches deep
Spacing of Support: 6-foot maximum on center
Fence height: A 2-ft minimum or high enough so depth of impounded water does not exceed one-half the height of the fence at any point along the line.
Attachment: Hardwood laths secured to stakes with five (5) 1-1/2 inch staples.
Fence Fabric: Spunbound polyester material with a fiberglass scrim or net sandwiched in between the layers, SS-700 SiltSaver or approved equal.

Installation:
1. Along the entire intended fence line, maintain contour as much as possible, dig a 6" deep flat bottom trench
2. On the downslope side of the trench, drive the post 8" to 12" into the ground.
3. Run a continuous length of fence fabric along upslope side of posts.
4. Fasten fence fabric to the upslope side of the stakes, extending it into the trench, and securing it with hardwood laths secured with five (5) 1-1/2 staples. The bottom 12" of the fence fabric shall be left unsecured to allow for entrenchment.
5. If a joint is necessary, staple the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 6" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth

Maintenance:
1. Inspect silt fence once every seven calendar days and 24 hours after each storm event of minimum of 1/2 inch rainfall.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion as outlined by the manufacturer
3. Remove deposited sediment when it reaches one-half the height of the fence at its lowest point or is causing the fabric to bulge.
4. Take care to avoid undermining the fence during clean out.
5. After watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize



BELTED SILT RETENTION FENCE



Silt Fence Wrap Joint Detail

DUST CONTROL

Purpose:
To reduce wind-borne soil particles (dust) that may be transported and deposited in waterbodies, create a health hazard, and/or a visibility hazard

Requirements:
1. Dust control measures may be applied at any construction site, but should always be utilized for sites with dry, unvegetated soils that are exposed to wind or vehicle traffic that can potentially result in the generation of dust.
2. Where practical, locate haul roads and stockpiles away from existing residential housing, businesses, and public areas.
3. Limit construction equipment on haul roads to the extent practical. Construction equipment should maintain low speed of 15 miles per hour or less.
4. Trucks leaving a project site should be covered, especially where conditions may result in blowing of haul material.
5. Minimize areas of disturbed, unvegetated soil exposed to traffic and wind.
6. Water quality impacts should always be considered when selecting a dust control treatment.

Application:
1. Temporary Methods
   A. Watering/Irrigation
   Typically used for haul roads and heavy traffic areas
   Used as an emergency treatment measure.
   B. Dust suppressants that are commercially available. Some products may be toxic to the environment. The level of toxicity and proximity to waterbodies and other unique resource areas should be considered when selecting a product. Products should be strictly applied according to the standards and specifications of the manufacturer and in accordance with applicable local, state, and federal regulations

Chlorides
- Used for unpaved construction haul roads
- Applied as a liquid solution or dry granules/flakes
- Application can inhibit growth
- Runoff from treated areas can pollute waterbodies

Resins
- Applied to haul roads, soil stockpiles, unvegetated soils, or used as a tackifier
- Water sheds off soils treated with these products.
- Low environmental impact after application
- Avoid introducing resins into waterbodies during application

Polymer Products
- Used on soil stockpiles, unvegetated soils.
- May also be applicable to haul roads.
- Apply with truck or hydroseeding machine
- Use restricted to anionic polymer mixtures and shall have less than or equal to .05 percent free acrylamide monomer by weight as established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency

Lignosulfonates
- Used for haul roads.
- Water soluble and could lose bonding capability in heavy rain.
- Environmentally friendly.

Tillage
- Large open disturbed areas
- Used as an emergency treatment measure
- Relatively flat areas of less than two percent
- Chisel plows with shanks spaced 12 to 18 inches apart, straight-toothed harrows, or similar tillage equipment.
- Best if implemented before soil begins to blow

Mulch
- Disturbed areas.
- Effective, temporary measure

Temporary Vegetative Cover
- Disturbed areas.
- Effective, temporary measure

Physical Barriers
- Emergency treatment measure.
- Solid board fences, snow fences, burlap fences, crate walls, bales of hay, etc
- Used to control air currents and soil migration

Street Sweeping
- Paved areas
- Street sweeper, vacuum truck, or a bucket and loader

Application:
Prepare site for the application method or product that was selected for dust control.

Maintenance:
1. Inspect daily.
2. Repeat treatments as needed when using temporary dust control methods.
3. Commercial products should be used in accordance with the recommendations of the manufacturer.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization

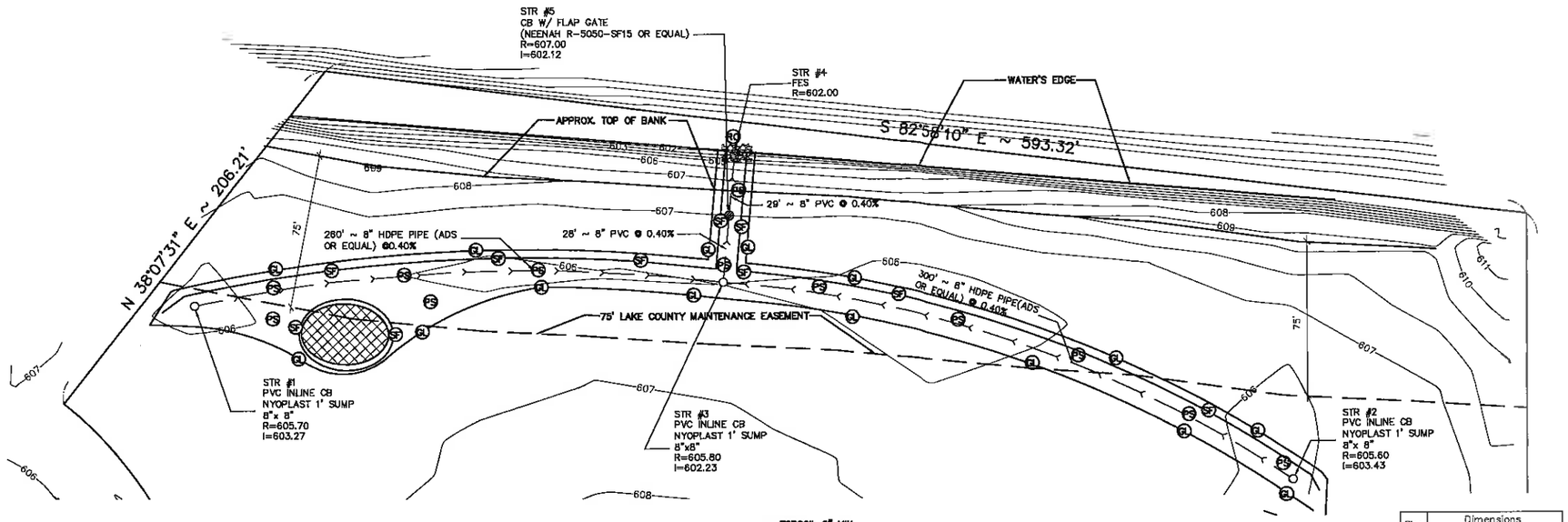
Specifications:
Material
Typically the darker, friable, loamy surface layer of soil found immediately below vegetation

Storage Area
1. Free of stumps, rock, and construction debris
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected

Application:
Salvaging and Stockpiling Topsoil
1. Determine depth and suitability of topsoil at site
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

Spreading Topsoil
1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil
3. Do not apply topsoil when the site is wet, muddy, or frozen
4. After spreading the topsoil, grade and stabilize the site

Maintenance:
1. Inspect daily.
2. Check for damage to perimeter barrier, repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and revegetate.



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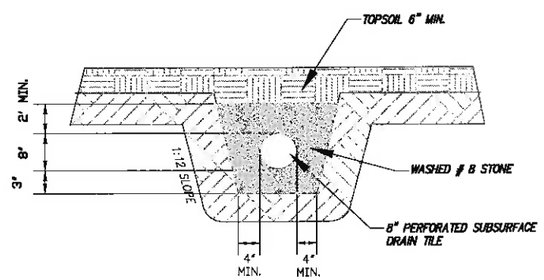
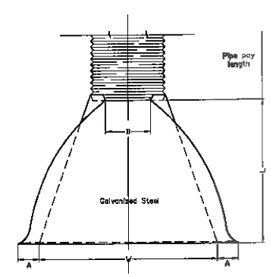


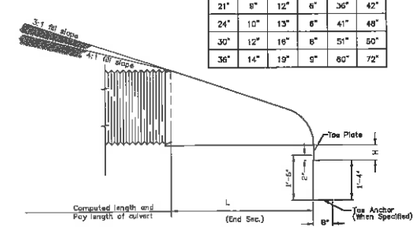
PERFORATED BEDDING DETAIL

NOT TO SCALE

Pipe Dia.	Dimensions				
	A	B	H	L	W
12"	6"	6"	6"	21"	24"
15"	7"	8"	6"	26"	30"
18"	8"	10"	6"	31"	36"
21"	9"	12"	6"	36"	42"
24"	10"	13"	6"	41"	48"
30"	12"	16"	6"	51"	60"
36"	14"	19"	9"	60"	72"



PLAN VIEW



SIDE VIEW

METAL END SECTION

NOT TO SCALE

LEGEND:

EXISTING

—XXX— CONTOUR

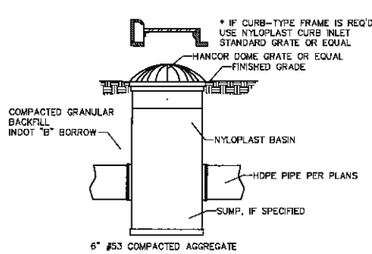
LEGEND:

PROPOSED

— SEWER LINE

— NYOPLAST CATCH BASIN

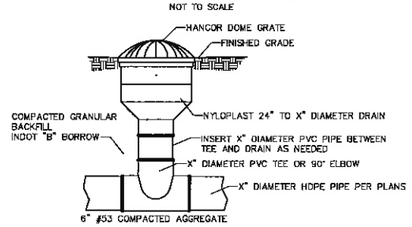
— CATCH BASIN



PVC DRAIN BASIN (NYLOPLAST OR EQUAL)

INSTALL PER MANUFACTURER'S GUIDELINES

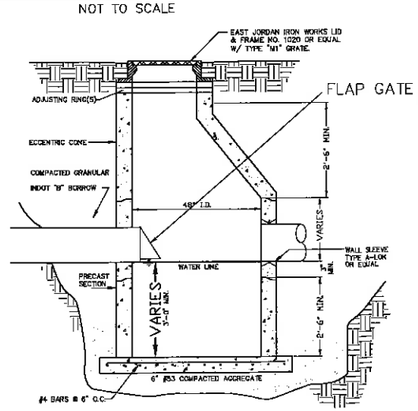
NOT TO SCALE



PVC INLINE DRAIN (NYLOPLAST OR EQUAL)

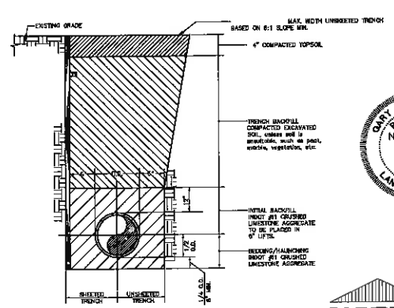
INSTALL PER MANUFACTURER'S GUIDELINES

NOT TO SCALE



TYPE "A" CATCH BASIN

NOT TO SCALE



PIPE BEDDING DETAIL FOR TRENCH IN GRASS AREAS

NOT TO SCALE

SWPPP LEGEND:

— SOIL STOCK PILE

— ROCK CHUTE

— SILT FENCE (SEDIMENT FENCE)

— GRADE LIMITS

—PERMANENT SEEDING

QUAY P. TORRENGA REGISTERED No. S0514 STATE OF INDIANA LAND SURVEYOR

QUAY P. TORRENGA REGISTERED No. 18378 STATE OF INDIANA PROFESSIONAL ENGINEER

NORTH

GRAPHIC SCALE

(IN FEET)

1 inch = 60 ft.

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5. Mulch all seeded areas. (Note: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

Maintenance:
1. Inspect periodically after planting to see that vegetative stands are adequately established; re-seed if necessary.
2. Check for erosion damage after storm events and repair, re-seed and mulch if necessary.

Notes:
1. Vegetative Filter Strip: permanent or temporary, shall be done on all disturbed areas along both sides of the streets and courts to reduce erosion where additional work is not scheduled.
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Requirements:
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Thickness: Two times the specified stone diameter but not greater than 3 inches.
Filter: Under permanent riprap install geotextile fabric for stabilization and filtration.

Installation:
Subgrade Preparation:
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3. Cut a keyway in stable material at the base of the slope to reinforce the toe.

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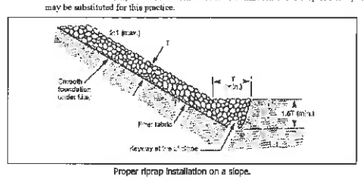

Proper riprap installation on a slope.

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2. Plan to add fertilizer the following seasons according to soil test recommendations.
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Thickness: 12" minimum or two times the specified stone diameter, which ever is greater.

Filter: Under permanent riprap install geotextile fabric for stabilization and filtration

Installation:

Subgrade Replacement:
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Filter Placement:
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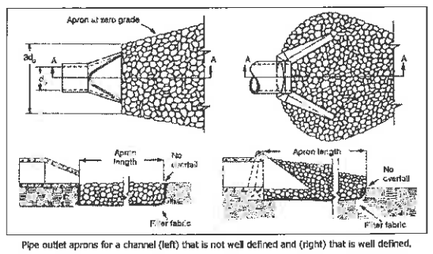

Pipe outlet aprons for a channel (left) that is not well defined and (right) that is well defined.

SILT FENCE

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Requirements:
Trench: 6" minimum depth, flat bottom, filled with compacted soil to bury lower portion of fence fabric.

Support: 2" x 2" hardwood stakes set at least 8-inches to 12-inches deep.

Spacing of Support: 6-foot maximum on center.

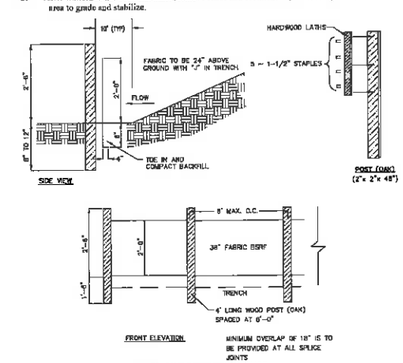
Fence height: A 2-ft. minimum or high enough so depth of impounded water does not exceed one-half the height of the fence at any point along the line.

Attachment: Hardwood laths secured to stakes with five (5) 1-1/2 inch staples.

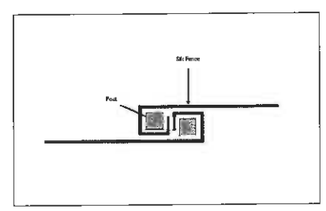
Fence Fabric: Spunbound polyester material with a fiberglass scrim or net sandwiched in between the layers. SS-700 SiltSaver or approved equal.

Installation:
1. Along the entire intended fence line, maintain contour as much as possible, dig a 6" deep flat bottom trench.
2. On the downslope side of the trench, drive the post 8" to 12" into the ground.
3. Run a continuous length of fence fabric along upslope side of posts.
4. Fasten fence fabric to the upslope side of the stakes, extending it into the trench, and securing it with hardwood laths secured with five (5) 1-1/2 staples. The bottom 12" of the fence fabric shall be left unsecured to allow for extensibement.
5. If a joint is necessary, staple the overlap to the nearest post with a wood lath.
6. Place the bottom 1' of fabric in the 6" deep trench, extending the remaining 4" of fabric toward the upslope side.
7. Backfill the trench with compacted earth.

Maintenance:
1. Inspect silt fence once every seven calendar days and 24 hours after each storm event of minimum of 1/2 inch rainfall.
2. If fence fabric tears, starts to decompose, or becomes ineffective, replace the affected portion, as outlined by the manufacturer.
3. Remove deposited sediment when it reaches one-half the height of the fence at its lowest point or is causing the fabric to bulge.
4. Take care to avoid undermining the fence during clean out.
5. After watershed has been stabilized, remove fence and sediment deposits, bring the disturbed area to grade and stabilize.



BELTED SILT RETENTION FENCE



Silt Fence Wrap Joint Detail

DUST CONTROL

Purpose:
To reduce wind-borne soil particles (dust) that may be transported and deposited in waterbodies, create a health hazard, and/or a visibility hazard.

Requirements:
1. Dust control measures may be applied at any construction site, but should always be utilized for sites with dry, unvegetated soils that are exposed to wind or vehicle traffic that can potentially result in the generation of dust.
2. Where practical, locate haul roads and stockpiles away from existing residential housing, businesses, and public areas.
3. Limit construction equipment on haul roads to the extent practical. Construction equipment should maintain low speed of 15 miles per hour or less.
4. Trucks leaving a project site should be covered, especially where conditions may result in blowing of haul material.
5. Minimize areas of disturbed, unvegetated soil exposed to traffic and wind.
6. Water quality impacts should always be considered when selecting a dust control treatment.

Application:
1. Temporary Methods
   A. Watering/Irrigation
      Typically used for haul roads and heavy traffic areas.
      Used as an emergency treatment measure.
   B. Dust suppressants that are commercially available. Some products may be toxic to the environment. The level of toxicity and proximity to waterbodies and other unique resource areas should be considered when selecting a product. Products should be strictly applied according to the standards and specifications of the manufacturer and in accordance with applicable local, state, and federal regulations.

Chlorides
- Used for unpaved construction haul roads.
- Applied as a liquid solution or dry granules/flakes.
- Application can inhibit growth.
- Runoff from treated areas can pollute waterbodies.

Resins
- Applied to haul roads, soil stockpiles, unvegetated soils, or used as a tackifier.
- Water sheds off soils treated with these products.
- Low environmental impact after application.
- Avoid introducing resins into waterbodies during application.

Polymer Products
- Used on soil stockpiles, unvegetated soils.
- May also be applicable to haul roads.
- Apply with truck or hydroseeding machine.
- Use restricted to anionic polymer mixtures and shall have less than or equal to .05 percent free acrylamide monomer by weight as established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency.

Lignin sulfonates
- Used for haul roads.
- Water soluble and could lose bonding capability in heavy rain.
- Environmentally friendly.

Tillage
- Large open disturbed areas.
- Used as an emergency treatment measure.
- Relatively flat areas of less than two percent.
- Chisel plows with shanks spaced 12 to 18 inches apart, straight-toothed harrows, or similar tillage equipment.
- Best if implemented before soil begins to blow.

Mulch
- Disturbed areas.
- Effective, temporary measure.

Temporary Vegetative Cover
- Disturbed areas
- Effective, temporary measure.

Physical Barriers
- Emergency treatment measure.
- Solid board fences, snow fences, burlap fences, crate walls, bales of hay, etc.
- Used to control air currents and soil migration.

Street Sweeping
- Paved areas.
- Street sweeper, vacuum truck, or a bucket end loader.

Application:
Prepare site for the application method or product that was selected for dust control.

Maintenance:
1. Inspect daily.
2. Repeat treatments as needed when using temporary dust control methods.
3. Commercial products should be used in accordance with the recommendations of the manufacturer.

TOPSOIL SALVAGE & UTILIZATION

Purpose: To provide a method of preserving topsoil for use in establishing vegetation to achieve final site stabilization.

Specifications:
Material
Typically the darker, friable, loamy surface layer of soil found immediately below vegetation.

Storage Area
1. Free of stumps, rock, and construction debris.
2. Stockpile covered with vegetation or a tarp.
3. Surrounded by a sediment barrier or sediment filter.
4. Stockpile outside rooting zone of trees to be protected.

Application:
Salvaging and Stockpiling Topsoil
1. Determine depth and suitability of topsoil at site.
2. Prior to stripping topsoil, install any site-specific down slope measures needed to control storm water runoff and sedimentation.
3. Remove soil material no deeper than the "surface soil".
4. Stockpile the material in accessible locations that will not interfere with other construction activities or block drainage.
5. Stockpiled soil should be temporarily seeded and surrounded by a sediment control measure.

Spreading Topsoil
1. Prior to applying topsoil, grade the subsoil and roughen the top three to four inches by disking.
2. Apply topsoil evenly to a depth of a minimum of four inches, then compact slightly to improve contact with the subsoil.
3. Do not apply topsoil when the site is wet, muddy, or frozen.
4. After spreading the topsoil, grade and stabilize the site.

Maintenance:
1. Inspect daily.
2. Check for damage to perimeter barrier; repair immediately.
3. Check for erosion or damage to newly spread topsoil; repair immediately and revegetate.

TORRENGA ENGINEERING, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
907 RIDGE ROAD, MUNSTER, INDIANA 46321
Tel. No.: (219) 836-8918 website: www.torrenga.com

Southridge Elementary School
9221 Johnston St.
Highland, IN 46322
SWPPP DETAILS

REVISIONS:
DATE: 08/04/16

CLIENT: School Town of Highland
9145 Kennedy Avenue
Highland, IN 46322

JOB NO: 2016-5026
SCALE: NTS

SHEET 2.0

FILE NO: Z:\2016-5026 Highland Schools\dwg\2016-5026 Southridge Elementary.dwg 3/23/2016 12:43:38 PM CDT

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8-17-16

AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE COUNTY OF LAKE, INDIANA,
FOR
DESIGN AND CONSTRUCTION
ASSISTANCE
FOR THE
CALUMET TOWNSHIP STORM SEWER IMPROVEMENTS SECTION 219
ENVIRONMENTAL INFRASTRUCTURE PROJECT

THIS AGREEMENT is entered into this 22 day of July, 2016, by and between the Department of the Army (hereinafter the "Government"), represented by the U.S. Army Engineer, Chicago District, and the County of Lake, Indiana, (hereinafter the "Non-Federal Sponsor"), represented by the President of the Lake County Board of Commissioners.

WITNESSETH, THAT:

WHEREAS, the Secretary of the Army is authorized to provide design and construction assistance for designated water-related environmental infrastructure and resource protection and development projects pursuant to Section 219 of the Water Resources Development Act of 1992, Public Law 102-580, as amended (hereinafter the "Section 219 Program");

WHEREAS, the provision of design and construction assistance for the Calumet Region of Indiana (hereinafter the "Section 219 Assistance Project") at the Counties of Benton, Jasper, Lake, Newton, and Porter, Indiana, was authorized by Section 219(f)(12) of the Water Resources Development Act of 1992, Public Law 102-580, as amended;

WHEREAS, the Government and the Non-Federal Sponsor desire to enter into an agreement (hereinafter the "Agreement") for the provision of design and construction assistance for the Calumet Township Storm Sewer Improvements Section 219 Environmental Infrastructure Project (an element of the Section 219 Assistance Project and hereinafter the "*Project*", as defined in Article I.A. of this Agreement);

WHEREAS, Section 219 of the Water Resources Development Act of 1992, Public Law 102-580, as amended, specifies the cost-sharing requirements applicable to the *Project*;

WHEREAS, Section 219(f)(12) of the Water Resources Development Act of 1992, Public Law 102-580, as amended, provides that $100,000,000 in

Federal funds is authorized for design and construction assistance for the Section 219 Assistance Project;

WHEREAS, the Government and Non-Federal Sponsor have the full authority and capability to perform as hereinafter set forth and intend to cooperate in cost-sharing and financing of the *Project* in accordance with the terms of this Agreement; and

WHEREAS, the Government and the Non-Federal Sponsor, in connection with this Agreement, desire to foster a partnering strategy and a working relationship between the Government and the Non-Federal Sponsor through a mutually developed formal strategy of commitment and communication embodied herein, which creates an environment where trust and teamwork prevent disputes, foster a cooperative bond between the Government and the Non-Federal Sponsor, and facilitate the successful implementation of the *Project*.

NOW, THEREFORE, the Government and the Non-Federal Sponsor agree as follows:

ARTICLE I - DEFINITIONS

A. The term "*Project*" shall mean construction of new storm sewers improvements in the Calumet Township area along Marshal and Chase Street, as generally described in the Calumet Region Environmental Infrastructure, Calumet Township Storm Sewer Improvements Project Letter Report, dated Jun 2, 2016, and approved by the U.S. Army Engineer, Chicago District, on 13 July, 2016.

B. The term "*total project costs*" shall mean the sum of all costs incurred by the Non-Federal Sponsor and the Government in accordance with the terms of this Agreement directly related to design and construction of the *Project*. Subject to the provisions of this Agreement, the term shall include, but is not necessarily limited to: the Government's design costs not incurred pursuant to any other agreement for the *Project*; the Government's costs of preparation of environmental compliance documentation in accordance with Article II.A.2. of this Agreement; the Non-Federal Sponsor's and the Government's costs of investigations to identify the existence and extent of hazardous substances in accordance with Article XIV.A. of this Agreement; the Government's costs of historic preservation activities in accordance with Article XVII.A. and Article XVII.B.1. of this Agreement; the Government's actual construction costs; the Government's supervision and administration costs; the Non-Federal Sponsor's and the Government's costs of participation in the Project Coordination Team in accordance with Article V of this Agreement; the Government's costs of contract dispute settlements or awards; the value of lands, easements, rights-of-way, and *relocations* for which the Government affords credit in accordance with Article IV of this Agreement but not to exceed 25 percent of total project costs; and the Non-Federal Sponsor's and the Government's costs of audit in accordance with Article X.B. and Article X.C. of this

Agreement. The term does not include any costs for operation, maintenance, repair, rehabilitation, or replacement of the *Project*; any costs of *betterments* under Article II.H.2. of this Agreement; any costs of dispute resolution under Article VII of this Agreement; the Government's costs for data recovery activities associated with historic preservation in accordance with Article XVII.B.2. and Article XVII.B.3. of this Agreement; or the Non-Federal Sponsor's costs of negotiating this Agreement.

C. The term "*period of design and construction*" shall mean the time from the effective date of this Agreement to the date that construction of the *Project* is complete, as determined by the Government, or the date that this Agreement is terminated in accordance with Article II.C. or Article XIII or Article XIV.C. of this Agreement, whichever is earlier.

D. The term "*financial obligations for design and construction*" shall mean the financial obligations of the Government that result or would result in costs that are or would be included in *total project costs* except for obligations pertaining to the provision of lands, easements, and rights-of-way, and the performance of *relocations*.

E. The term "*non-Federal proportionate share*" shall mean the ratio of the Non-Federal Sponsor's total contribution of funds required by Article II.B.2. of this Agreement to *financial obligations for design and construction*, as projected by the Government.

F. The term "*highway*" shall mean any highway, roadway, street, or way, including any bridge thereof, that is owned by a public entity.

G. The term "*relocation*" shall mean providing a functionally equivalent facility to the owner of a utility, cemetery, *highway*, railroad, or public facility when such action is authorized in accordance with applicable legal principles of just compensation. Providing a functionally equivalent facility may take the form of alteration, lowering, raising, or replacement and attendant demolition of the affected facility or part thereof.

H. The term "*betterment*" shall mean a difference in the design or construction of an element of the *Project* that results from the application of standards that the Government determines exceed those that the Government would otherwise apply to the design or construction of that element. The term does not include any design or construction for features not included in the *Project* as defined in paragraph A. of this Article.

I. The term "*Federal program funds*" shall mean funds provided by a Federal agency, other than the Department of the Army, plus any non-Federal contribution required as a matching share therefor.

J. The term "*Section 219 Project Limit*" shall mean the statutory limitation on the Government's financial participation in the design and construction of the Section 219 Assistance Project as specified in Section 219(f) of the Water Resources Development Act of 1992, Public Law 102-580, as amended. As of the effective date of this Agreement, such limitation is $100,000,000.

K. The term "*fiscal year*" shall mean one year beginning on October 1 and ending on September 30.

ARTICLE II - OBLIGATIONS OF THE GOVERNMENT AND THE NON-FEDERAL SPONSOR

A. The Government, subject to receiving funds appropriated by the Congress of the United States (hereinafter the "Congress") and using those funds and funds provided by the Non-Federal Sponsor, expeditiously shall design and construct the *Project*, applying those procedures usually applied to Federal projects, in accordance with Federal laws, regulations, and policies.

1. The Government shall not issue the solicitation for the first contract for design of the *Project* or commence design of the *Project* using the Government's own forces until the Non-Federal Sponsor has confirmed in writing its willingness to proceed with the *Project*.

2. The Government shall develop and coordinate as required, an Environmental Assessment and Finding of No Significant Impact or an Environmental Impact Statement and Record of Decision, as necessary, to inform the public regarding the environmental impacts of the *Project* in accordance with the National Environmental Policy Act of 1969 (hereinafter "NEPA") (42 U.S.C. 4321–4370e). However, the Government shall not issue the solicitation for the first construction contract for the *Project* or commence construction of the *Project* using the Government's own forces until all applicable environmental laws and regulations have been complied with, including, but not limited to NEPA and Section 401 of the Federal Water Pollution Control Act (33 U.S.C. 1341).

3. The Government shall afford the Non-Federal Sponsor the opportunity to review and comment on the solicitations for all contracts, including relevant plans and specifications, prior to the Government's issuance of such solicitations. To the extent possible, the Government shall afford the Non-Federal Sponsor the opportunity to review and comment on all proposed contract modifications, including change orders. In any instance where providing the Non-Federal Sponsor with notification of a contract modification is not possible prior to execution of the contract modification, the Government shall provide such notification in writing at the earliest date possible. To the extent possible, the Government also shall afford the Non-Federal Sponsor the opportunity to review

and comment on all contract claims prior to resolution thereof. The Government shall consider in good faith the comments of the Non-Federal Sponsor, but the contents of solicitations, award of contracts or commencement of design or construction using the Government's own forces, execution of contract modifications, resolution of contract claims, and performance of all work on the *Project* shall be exclusively within the control of the Government.

4. At the time the U.S. Army Engineer, Chicago District (hereinafter the "District Engineer") furnishes the contractor with the Government's Written Notice of Acceptance of Completed Work for each contract awarded by the Government for the *Project*, the District Engineer shall furnish a copy thereof to the Non-Federal Sponsor.

B. The Non-Federal Sponsor shall contribute 25 percent of *total project costs* in accordance with the provisions of this paragraph.

1. In accordance with Article III of this Agreement, the Non-Federal Sponsor shall provide all lands, easements, and rights-of-way, including those required for *relocations*, the borrowing of material, and the disposal of dredged or excavated material, and shall perform or ensure performance of all *relocations* that the Government determines to be required or to be necessary for construction, operation, and maintenance of the *Project*.

2. The Non-Federal Sponsor shall provide funds in accordance with Article VI.B. of this Agreement in the amount necessary to meet the Non-Federal Sponsor's required share of 25 percent of *total project costs* if the Government projects at any time that the collective value of the following contributions will be less than such required share: (a) the value of the Non-Federal Sponsor's contributions under paragraph B.1. of this Article, as determined in accordance with Article IV of this Agreement that do not exceed 25 percent of *total project costs*; and (b) the value of the Non-Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement.

3. The Government, subject to the availability of funds and as limited by the *Section 219 Project Limit*, shall refund or reimburse to the Non-Federal Sponsor any contributions in excess of 25 percent of *total project costs* if the Government determines at any time that the collective value of the following contributions has exceeded 25 percent of *total project costs*: (a) the value of the Non-Federal Sponsor's contributions under paragraph B.2. of this Article; (b) the value of the Non-Federal Sponsor's contributions under paragraph B.1. of this Article, as determined in accordance with Article IV of this Agreement that do not exceed 25 percent of *total project costs*; and (c) the value of the Non-Federal Sponsor's contributions under Article V, Article X, and Article XIV.A. of this Agreement.

C. Notwithstanding any other provision of this Agreement, Federal financial participation in the *Project* is limited by the following provisions of this paragraph.

1. As of the effective date of this Agreement, $31,631,000 of Federal funds have been provided by Congress for the Section 219 Assistance Project of which $750,000 is currently projected to be available for the *Project*. The Government makes no commitment to request Congress to provide additional Federal funds for the Section 219 Assistance Project or the *Project*. Further, the Government's financial participation in the *Project* is limited to the Federal funds that the Government makes available to the *Project*.

2. In the event the Government projects that the amount of Federal funds the Government will make available to the *Project* through the then-current *fiscal year*, or the amount of Federal funds the Government will make available for the *Project* through the upcoming *fiscal year*, is not sufficient to meet the Federal share of *total project costs* and the Federal share of costs for data recovery activities associated with historic preservation in accordance with Article XVII.B.2. and Article XVII.B.3. of this Agreement that the Government projects to be incurred through the then-current or upcoming *fiscal year*, as applicable, the Government shall notify the Non-Federal Sponsor in writing of such insufficiency of funds and of the date the Government projects that the Federal funds that will have been made available to the *Project* will be exhausted. Upon the exhaustion of Federal funds made available by the Government to the *Project*, future performance under this Agreement shall be suspended and the parties shall proceed in accordance with Article XIII.B. of this Agreement.

3. If the Government determines that the total amount of Federal funds provided by Congress for the Section 219 Assistance Project has reached the *Section 219 Project Limit*, and the Government projects that the Federal funds the Government will make available to the *Project* within the *Section 219 Project Limit* will not be sufficient to meet the Federal share of *total project costs* and the Federal share of costs for data recovery activities associated with historic preservation in accordance with Article XVII.B.2. and Article XVII.B.3. of this Agreement, the Government shall notify the Non-Federal Sponsor in writing of such insufficiency of funds and of the date the Government projects that the Federal funds that will have been made available to the *Project* will be exhausted. Upon the exhaustion of Federal funds made available by the Government to the *Project* within the *Section 219 Project Limit*, the parties shall terminate this Agreement and proceed in accordance with Article XIII.E. of this Agreement.

D. When the District Engineer determines that the entire *Project*, or a portion thereof, is complete, the District Engineer shall so notify the Non-Federal Sponsor in writing and furnish the Non-Federal Sponsor with a final Operation, Maintenance, Repair, Rehabilitation, and Replacement Manual (hereinafter the

"OMRR&R Manual") or, if the final OMRR&R Manual is not available, an interim OMRR&R Manual for the entire *Project* or such completed portion. Upon such notification, the Government also shall furnish to the Non-Federal Sponsor a copy of all final as-built drawings for the entire *Project* or such completed portion if such drawings are available. Not later than 6 months after such notification by the Government that the entire *Project* is complete, the Government shall furnish the Non-Federal Sponsor with the final OMRR&R Manual and all final as-built drawings for the entire *Project*. In the event the final OMRR&R Manual or all final as-built drawings for the entire *Project* cannot be completed within the 6 month period, the Government shall provide written notice to the Non-Federal Sponsor, and the Government and the Non-Federal Sponsor shall negotiate an acceptable completion date for furnishing such documents. Further, after completion of all contracts for the *Project*, copies of all of the Government's Written Notices of Acceptance of Completed Work for all contracts for the *Project* that have not been provided previously shall be provided to the Non-Federal Sponsor.

E. Upon notification from the District Engineer in accordance with paragraph D. of this Article, the Non-Federal Sponsor shall operate, maintain, repair, rehabilitate, and replace the entire *Project*, or the completed portion thereof as the case may be, in accordance with Article VIII of this Agreement.

F. Upon conclusion of the *period of design and construction*, the Government shall conduct an accounting, in accordance with Article VI.C. of this Agreement, and furnish the results to the Non-Federal Sponsor.

G. The Non-Federal Sponsor shall not use *Federal program funds* to meet any of its obligations for the *Project* under this Agreement unless the Federal agency providing the Federal portion of such funds verifies in writing that expenditure of such funds for such purpose is expressly authorized by Federal law.

H. The Non-Federal Sponsor may request the Government to perform or provide, on behalf of the Non-Federal Sponsor, one or more of the services (hereinafter the "additional work") described in this paragraph. Such requests shall be in writing and shall describe the additional work requested to be performed or provided. If in its sole discretion the Government elects to perform or provide the requested additional work or any portion thereof, it shall so notify the Non-Federal Sponsor in a writing that sets forth any applicable terms and conditions, which must be consistent with this Agreement. In the event of conflict between such a writing and this Agreement, this Agreement shall control. The Non-Federal Sponsor shall be solely responsible for all costs of the additional work performed or provided by the Government under this paragraph and shall pay all such costs in accordance with Article VI.D. of this Agreement.

1. Acquisition of lands, easements, and rights-of-way or performance of *relocations* for the *Project*. Notwithstanding acquisition of lands, easements, and rights-of-way or performance of *relocations* by the Government,

the Non-Federal Sponsor shall be responsible, as between the Government and the Non-Federal Sponsor, for any costs of cleanup and response in accordance with Article XIV.C. of this Agreement.

2. Inclusion of *betterments* in the design or construction of the *Project*. In the event the Government elects to include any such *betterments*, the Government shall allocate the costs of the *Project* features that include *betterments* between *total project costs* and the costs of the *betterments*.

ARTICLE III - LANDS, EASEMENTS, RIGHTS-OF-WAY, RELOCATIONS, AND COMPLIANCE WITH PUBLIC LAW 91-646, AS AMENDED

A. The Government, after consultation with the Non-Federal Sponsor, shall determine the lands, easements, and rights-of-way required for construction, operation, and maintenance of the *Project*, including those required for *relocations*, the borrowing of material, and the disposal of dredged or excavated material. The Government in a timely manner shall provide the Non-Federal Sponsor with general written descriptions, including maps as appropriate, of the lands, easements, and rights-of-way that the Government determines the Non-Federal Sponsor must provide, in detail sufficient to enable the Non-Federal Sponsor to fulfill its obligations under this paragraph, and shall provide the Non-Federal Sponsor with a written notice to proceed with acquisition of such lands, easements, and rights-of-way. Prior to the issuance of the solicitation for each Government contract for construction of the *Project*, or prior to the Government incurring any *financial obligations for design and construction* of a portion of the *Project* using the Government's own forces, the Non-Federal Sponsor shall acquire all lands, easements, and rights-of-way the Government determines the Non-Federal Sponsor must provide for that work and shall provide the Government with authorization for entry thereto. Furthermore, prior to the end of the *period of design and construction*, the Non-Federal Sponsor shall acquire all lands, easements, and rights-of-way required for construction, operation, and maintenance of the *Project*, as set forth in such descriptions, and shall provide the Government with authorization for entry thereto. The Non-Federal Sponsor shall ensure that lands, easements, and rights-of-way that the Government determines to be required for the *Project* and that were provided by the Non-Federal Sponsor are retained in public ownership for uses compatible with the authorized purposes of the *Project*.

B. The Government, after consultation with the Non-Federal Sponsor, shall determine the *relocations* necessary for construction, operation, and maintenance of the *Project*, including those necessary to enable the borrowing of material or the disposal of dredged or excavated material. The Government in a timely manner shall provide the Non-Federal Sponsor with general written descriptions, including maps as appropriate, of such *relocations* in detail sufficient to enable the Non-Federal Sponsor to fulfill its obligations under this paragraph, and shall provide the

Non-Federal Sponsor with a written notice to proceed with such *relocations*. Prior to the issuance of the solicitation for each Government contract for construction of the *Project*, or prior to the Government incurring any *financial obligations for design and construction* of a portion of the *Project* using the Government's own forces, the Non-Federal Sponsor shall prepare or ensure the preparation of plans and specifications for, and perform or ensure the performance of, all *relocations* the Government determines to be necessary for that work. Furthermore, prior to the end of the *period of design and construction*, the Non-Federal Sponsor shall perform or ensure performance of all *relocations* as set forth in such descriptions.

C. The Non-Federal Sponsor shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 C.F.R. Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the *Project*, including those required for *relocations*, the borrowing of material, or the disposal of dredged or excavated material, and shall inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

ARTICLE IV - CREDIT FOR VALUE OF LANDS, EASEMENTS, RIGHTS-OF-WAY, AND RELOCATIONS

A. The Government shall include in *total project costs* and afford credit toward the Non-Federal Sponsor's share of *total project costs* for the value of the lands, easements, and rights-of-way that the Non-Federal Sponsor must provide pursuant to Article III.A. of this Agreement and for the value of the *relocations* that the Non-Federal Sponsor must perform or for which it must ensure performance pursuant to Article III.B. of this Agreement. However, no amount shall be included in *total project costs* and no credit shall be afforded for the value of any lands, easements, rights-of-way, or *relocations* that have been provided previously as an item of cooperation for another Federal project. In addition, no amount shall be included in *total project costs* and no credit shall be afforded for the value of lands, easements, rights-of-way, or *relocations* that were acquired or performed using *Federal program funds* unless the Federal agency providing the Federal portion of such funds verifies in writing that affording credit for the value of such items is expressly authorized by Federal law. Finally, no amount shall be included in *total project costs*, no credit shall be afforded pursuant to this Article, and no reimbursement shall be provided to the Non-Federal Sponsor, for any value in excess of 25 percent of *total project costs*.

B. The Non-Federal Sponsor in a timely manner shall provide the Government with such documents as are sufficient to enable the Government to determine the value of any contribution provided pursuant to Article III.A. or Article III.B. of this Agreement. Upon receipt of such documents, the Government in a timely manner shall determine the value of such contributions and include in *total*

project costs the amount of such value that does not exceed 25 percent of *total project costs*.

C. For the purposes of determining the value to be included in *total project costs* and the amount of credit to be afforded in accordance with this Article and except as otherwise provided in paragraph E. of this Article, the value of lands, easements, and rights-of-way, including those required for *relocations*, the borrowing of material, and the disposal of dredged or excavated material, shall be the fair market value of the real property interests, plus certain incidental costs of acquiring those interests, as determined in accordance with the provisions of this paragraph.

1. Date of Valuation. The fair market value of lands, easements, or rights-of-way owned by the Non-Federal Sponsor on the effective date of this Agreement shall be the fair market value of such real property interests as of the date the Non-Federal Sponsor provides the Government with authorization for entry thereto. The fair market value of lands, easements, or rights-of-way acquired by the Non-Federal Sponsor after the effective date of this Agreement shall be the fair market value of such real property interests at the time the interests are acquired.

2. General Valuation Procedure. Except as provided in paragraph C.3. or paragraph C.5. of this Article, the fair market value of lands, easements, or rights-of-way shall be determined in accordance with the provisions of this paragraph.

a. The Non-Federal Sponsor shall obtain, for each real property interest, an appraisal that is prepared by a qualified appraiser who is acceptable to the Non-Federal Sponsor and the Government. The Non-Federal Sponsor shall provide the Government with the appraisal no later than 6 months after the Non-Federal Sponsor provides the Government with an authorization for entry for such real property interest. The appraisal must be prepared in accordance with the applicable rules of just compensation, as specified by the Government. The fair market value shall be the amount set forth in the Non-Federal Sponsor's appraisal, if such appraisal is approved by the Government. In the event the Government does not approve the Non-Federal Sponsor's appraisal, the Non-Federal Sponsor may obtain a second appraisal, and the fair market value shall be the amount set forth in the Non-Federal Sponsor's second appraisal, if such appraisal is approved by the Government. In the event the Government does not approve the Non-Federal Sponsor's second appraisal, the Non-Federal Sponsor chooses not to obtain a second appraisal, or the Non-Federal Sponsor does not provide the first appraisal as required in this paragraph, the Government shall obtain an appraisal, and the fair market value shall be the amount set forth in the Government's appraisal, if such appraisal is approved by the Non-Federal Sponsor. In the event the Non-Federal Sponsor does not approve the Government's appraisal, the Government, after consultation with the Non-Federal Sponsor, shall consider the Government's and the Non-Federal Sponsor's appraisals and

interests taken, to the extent the Government determined such interests are required for construction, operation, and maintenance of the *Project*, or the amount of any stipulated settlement or portion thereof that the Government approves in writing.

4. Incidental Costs. For lands, easements, or rights-of-way acquired by the Non-Federal Sponsor within a five year period preceding the effective date of this Agreement, or at any time after the effective date of this Agreement, the value of the interest shall include the documented incidental costs of acquiring the interest, as determined by the Government, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs. In the event the Government modifies its determination made pursuant to Article III.A. of this Agreement, the Government shall afford credit for the documented incidental costs associated with preparing to acquire the lands, easements, or rights-of-way identified in the original determination, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs. Such incidental costs shall include, but not necessarily be limited to, closing and title costs, appraisal costs, survey costs, attorney's fees, plat maps, mapping costs, actual amounts expended for payment of any relocation assistance benefits provided in accordance with Article III.C. of this Agreement, and other payments by the Non-Federal Sponsor for items that are generally recognized as compensable, and required to be paid, by applicable state law due to the acquisition of a real property interest in accordance with Article III of this Agreement. The value of the interests provided by the Non-Federal Sponsor in accordance with Article III.A. of this Agreement shall also include the documented costs of obtaining appraisals pursuant to paragraph C.2. of this Article, as determined by the Government, and subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

5. Waiver of Appraisal. Except as required by paragraph C.3. of this Article, the Government may waive the requirement for an appraisal pursuant to this paragraph if it determines that an appraisal is unnecessary because the valuation is uncomplicated and that the estimated fair market value of the real property interest is $10,000 or less based upon a review of available data. In such event, the Government and the Non-Federal Sponsor must agree in writing to the value of such real property interest in an amount not in excess of $10,000.

D. After consultation with the Non-Federal Sponsor, the Government shall determine the value of *relocations* in accordance with the provisions of this paragraph.

1. For a *relocation* other than a *highway*, the value shall be only that portion of *relocation* costs that the Government determines is necessary to provide a functionally equivalent facility, reduced by depreciation, as applicable, and by the salvage value of any removed items.

2. For a *relocation* of a *highway*, the value shall be only that portion of *relocation* costs that would be necessary to accomplish the *relocation* in accordance with the design standard that the State of Indiana would apply under similar conditions of geography and traffic load, reduced by the salvage value of any removed items.

3. *Relocation* costs shall include, but not necessarily be limited to, actual costs of performing the *relocation*; planning, engineering and design costs; supervision and administration costs; and documented incidental costs associated with performance of the *relocation*, as determined by the Government. *Relocation* costs shall not include any costs due to *betterments*, as determined by the Government, nor any additional cost of using new material when suitable used material is available. *Relocation* costs shall be subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

4. Any credit afforded under the terms of this Agreement for the value of *relocations* performed within the *Project* boundaries is subject to satisfactory compliance with applicable Federal labor laws covering non-Federal construction, including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)). Notwithstanding any other provision of this Agreement, credit may be withheld, in whole or in part, as a result of the Non-Federal Sponsor's failure to comply with its obligations under these laws.

E. Where the Government, on behalf of the Non-Federal Sponsor pursuant to Article II.H.1. of this Agreement, acquires lands, easements, or rights-of-way, or performs *relocations*, the value to be included in *total project costs* and the amount of credit to be afforded in accordance with this Agreement shall be the costs of such work performed or provided by the Government that are paid by the Non-Federal Sponsor in accordance with Article VI.D. of this Agreement. In addition, the value to be included in *total project costs* and the amount of such credit to be afforded in accordance with this Agreement shall include the documented costs incurred by the Non-Federal Sponsor in accordance with the terms and conditions agreed upon in writing pursuant to Article II.H.1. of this Agreement subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

ARTICLE V - PROJECT COORDINATION TEAM

A. To provide for consistent and effective communication, the Non-Federal Sponsor and the Government, not later than 30 calendar days after the effective

date of this Agreement, shall appoint named senior representatives to a Project Coordination Team. Thereafter, the Project Coordination Team shall meet regularly until the end of the *period of design and construction*. The Government's Project Manager and a counterpart named by the Non-Federal Sponsor shall co-chair the Project Coordination Team.

B. The Government's Project Manager and the Non-Federal Sponsor's counterpart shall keep the Project Coordination Team informed of the progress of design and construction and of significant pending issues and actions, and shall seek the views of the Project Coordination Team on matters that the Project Coordination Team generally oversees.

C. Until the end of the *period of design and construction*, the Project Coordination Team shall generally oversee the *Project*, including matters related to: design; completion of all necessary environmental coordination and documentation; plans and specifications; scheduling; real property and *relocation* requirements; real property acquisition; contract awards and modifications; contract costs; the application of and compliance with 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)) for *relocations*; the investigations to identify the existence and extent of hazardous substances in accordance with Article XIV.A. of this Agreement; historic preservation activities in accordance with Article XVII of this Agreement; the Government's cost projections; final inspection of the entire *Project* or completed portions thereof as the case may be; preparation of the proposed OMRR&R Manual; anticipated requirements and needed capabilities for performance of operation, maintenance, repair, rehabilitation, and replacement of the *Project* including issuance of permits; and other matters related to the *Project*. This oversight of the *Project* shall be consistent with a project management plan developed by the Government after consultation with the Non-Federal Sponsor.

D. The Project Coordination Team may make recommendations to the District Engineer on matters related to the *Project* that the Project Coordination Team generally oversees, including suggestions to avoid potential sources of dispute. The Government in good faith shall consider the recommendations of the Project Coordination Team. The Government, having the legal authority and responsibility for design and construction of the *Project*, has the discretion to accept or reject, in whole or in part, the Project Coordination Team's recommendations.

E. The Non-Federal Sponsor's costs of participation in the Project Coordination Team shall be included in *total project costs* and shared in accordance with the provisions of this Agreement, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs. The Government's costs of

1. Not less than 30 calendar days prior to the scheduled date for issuance of the solicitation for the first contract for design of the *Project* or commencement of design of the *Project* using the Government's own forces, the Government shall notify the Non-Federal Sponsor in writing of such scheduled date and the funds the Government determines to be required from the Non-Federal Sponsor to meet its projected share under Article II.B.2. and Article XVII.B.3. of this Agreement. Not later than such scheduled date, the Non-Federal Sponsor shall provide the Government with the full amount of such required funds by delivering a check payable to "FAO, USAED, Chicago" to the District Engineer, or verifying to the satisfaction of the Government that the Non-Federal Sponsor has deposited such required funds in an escrow or other account acceptable to the Government, with interest accruing to the Non-Federal Sponsor, or by presenting the Government with an irrevocable letter of credit acceptable to the Government for such required funds, or by providing an Electronic Funds Transfer of such required funds in accordance with procedures established by the Government.

2. The Government shall draw from the funds provided by the Non-Federal Sponsor such sums as the Government deems necessary to cover: (a) the *non-Federal proportionate share* of *financial obligations for design and construction* incurred prior to the commencement of the *period of design and construction*; (b) the *non-Federal proportionate share* of *financial obligations for design and construction* as *financial obligations for design and construction* are incurred; and (c) the Non-Federal Sponsor's share of financial obligations for data recovery activities associated with historic preservation pursuant to Article XVII.B.3. of this Agreement as those financial obligations are incurred. If at any time the Government determines that additional funds will be needed from the Non-Federal Sponsor to cover the Non-Federal Sponsor's share of such financial obligations, the Government shall notify the Non-Federal Sponsor in writing of the additional funds required and provide an explanation of why additional funds are required. Within 60 calendar days from receipt of such notice, the Non-Federal Sponsor shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in paragraph B.1. of this Article.

C. Upon conclusion of the *period of design and construction* and resolution of all relevant claims and appeals and eminent domain proceedings, the Government shall conduct a final accounting and furnish the Non-Federal Sponsor with written notice of the results of such final accounting. If outstanding relevant claims and appeals or eminent domain proceedings prevent a final accounting from being conducted in a timely manner, the Government shall conduct an interim accounting and furnish the Non-Federal Sponsor with written notice of the results of such interim accounting. Once all outstanding relevant claims and appeals and eminent domain proceedings are resolved, the Government shall amend the interim accounting to complete the final accounting and furnish the Non-Federal Sponsor with written notice of the results of such

provide additional funds to pay for such additional work, the Government shall notify the Non-Federal Sponsor in writing of the additional funds required and provide an explanation of why additional funds are required. Within 30 calendar days from receipt of such notice, the Non-Federal Sponsor shall provide the Government with the full amount of such additional required funds through any of the payment mechanisms specified in paragraph B.1. of this Article.

3. At the time the Government conducts the interim or final accounting, as applicable, the Government shall conduct an accounting of the Government's financial obligations for additional work incurred and furnish the Non-Federal Sponsor with written notice of the results of such accounting. If outstanding relevant claims and appeals or eminent domain proceedings prevent a final accounting of additional work from being conducted in a timely manner, the Government shall conduct an interim accounting of additional work and furnish the Non-Federal Sponsor with written notice of the results of such interim accounting. Once all outstanding relevant claims and appeals and eminent domain proceedings are resolved, the Government shall amend the interim accounting of additional work to complete the final accounting of additional work and furnish the Non-Federal Sponsor with written notice of the results of such final accounting. Such interim or final accounting, as applicable, shall determine the Government's total financial obligations for additional work and the Non-Federal Sponsor's contribution of funds provided thereto as of the date of such accounting.

a. Should the interim or final accounting, as applicable, show that the total obligations for additional work exceed the total contribution of funds provided by the Non-Federal Sponsor for such additional work, the Non-Federal Sponsor, no later than 90 calendar days after receipt of written notice from the Government, shall make a payment to the Government in an amount equal to the difference by delivering a check payable to "FAO, USAED, Chicago" to the District Engineer or by providing an Electronic Funds Transfer in accordance with procedures established by the Government.

b. Should the interim or final accounting, as applicable, show that the total contribution of funds provided by the Non-Federal Sponsor for additional work exceeds the total obligations for such additional work, the Government, subject to the availability of funds, shall refund the excess amount to the Non-Federal Sponsor within 90 calendar days of the date of completion of such accounting. In the event the Non-Federal Sponsor is due a refund and funds are not available to refund the excess amount to the Non-Federal Sponsor, the Government shall seek such appropriations as are necessary to make the refund.

ARTICLE VII - DISPUTE RESOLUTION

As a condition precedent to a party bringing any suit for breach of this Agreement, that party must first notify the other party in writing of the nature of the purported breach and seek in good faith to resolve the dispute through negotiation. If the parties cannot resolve the dispute through negotiation, they may agree to a mutually acceptable method of non-binding alternative dispute resolution with a qualified third party acceptable to both parties. Each party shall pay an equal share of any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VIII - OPERATION, MAINTENANCE, REPAIR, REHABILITATION, AND REPLACEMENT (OMRR&R)

A. Upon receipt of the notification from the District Engineer in accordance with Article II.D. of this Agreement and for so long as the *Project* remains authorized, the Non-Federal Sponsor, pursuant to Article II.E. of this Agreement, shall operate, maintain, repair, rehabilitate, and replace the entire *Project* or a completed portion thereof as the case may be, at no cost to the Government. The Non-Federal Sponsor shall conduct its operation, maintenance, repair, rehabilitation, and replacement responsibilities in a manner compatible with the *Project's* authorized purposes and in accordance with specific directions prescribed by the Government in the interim or final OMRR&R Manual and any subsequent amendments thereto.

B. The Non-Federal Sponsor hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon property that the Non-Federal Sponsor now or hereafter owns or controls for access to the *Project* for the purpose of inspection, if the Government determines an inspection to be necessary. If an inspection shows that the Non-Federal Sponsor for any reason is failing to perform its obligations under this Agreement, the Government shall send a written notice describing the non-performance to the Non-Federal Sponsor.

ARTICLE IX – HOLD AND SAVE

The Non-Federal Sponsor shall hold and save the Government free from all damages arising from design, construction, operation, maintenance, repair, rehabilitation, and replacement of the *Project* and any *betterments*, except for damages due to the fault or negligence of the Government or its contractors.

ARTICLE X - MAINTENANCE OF RECORDS AND AUDIT

A. Not later than 60 calendar days after the effective date of this Agreement, the Government and the Non-Federal Sponsor shall develop procedures for keeping books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to this Agreement. These procedures shall incorporate, and apply as appropriate, the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 C.F.R. Section 33.20. The Government and the Non-Federal Sponsor shall maintain such books, records, documents, or other evidence in accordance with these procedures and for a minimum of three years after completion of the accounting for which such books, records, documents, or other evidence were required. To the extent permitted under applicable Federal laws and regulations, the Government and the Non-Federal Sponsor shall each allow the other to inspect such books, records, documents, or other evidence.

B. In accordance with 32 C.F.R. Section 33.26, the Non-Federal Sponsor is responsible for complying with the Single Audit Act Amendments of 1996 (31 U.S.C. 7501-7507), as implemented by Office of Management and Budget (OMB) Circular No. A-133 and Department of Defense Directive 7600.10. Upon request of the Non-Federal Sponsor and to the extent permitted under applicable Federal laws and regulations, the Government shall provide to the Non-Federal Sponsor and independent auditors any information necessary to enable an audit of the Non-Federal Sponsor's activities under this Agreement. The costs of any non-Federal audits performed in accordance with this paragraph shall be allocated in accordance with the provisions of OMB Circulars A-87 and A-133, and such costs as are allocated to the *Project* shall be included in *total project costs* and shared in accordance with the provisions of this Agreement.

C. In accordance with 31 U.S.C. 7503, the Government may conduct audits in addition to any audit that the Non-Federal Sponsor is required to conduct under the Single Audit Act Amendments of 1996. Any such Government audits shall be conducted in accordance with Government Auditing Standards and the cost principles in OMB Circular No. A-87 and other applicable cost principles and regulations. The costs of Government audits performed in accordance with this paragraph shall be included in *total project costs* and shared in accordance with the provisions of this Agreement.

ARTICLE XI - FEDERAL AND STATE LAWS

In the exercise of their respective rights and obligations under this Agreement, the Non-Federal Sponsor and the Government shall comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d)

and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army"; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)).

ARTICLE XII - RELATIONSHIP OF PARTIES

A. In the exercise of their respective rights and obligations under this Agreement, the Government and the Non-Federal Sponsor each act in an independent capacity, and neither is to be considered the officer, agent, or employee of the other.

B. In the exercise of its rights and obligations under this Agreement, neither party shall provide, without the consent of the other party, any contractor with a release that waives or purports to waive any rights the other party may have to seek relief or redress against that contractor either pursuant to any cause of action that the other party may have or for violation of any law.

ARTICLE XIII - TERMINATION OR SUSPENSION

A. If at any time the Non-Federal Sponsor fails to fulfill its obligations under this Agreement, the Assistant Secretary of the Army (Civil Works) shall terminate this Agreement or suspend future performance under this Agreement unless he determines that continuation of work on the *Project* is in the interest of the United States.

B. In the event future performance under this Agreement is suspended pursuant to Article II.C.2. of this Agreement, such suspension shall remain in effect until such time that the Government notifies the Non-Federal Sponsor in writing that sufficient Federal funds are available to meet the Federal share of *total project costs* and the Federal share of costs for data recovery activities associated with historic preservation in accordance with Article XVII.B.2. and Article XVII.B.3. of this Agreement the Government projects to be incurred through the then-current or upcoming *fiscal year*, or the Government or the Non-Federal Sponsor elects to terminate this Agreement.

C. In the event that the Government and the Non-Federal Sponsor determine to suspend future performance under this Agreement in accordance with Article XIV.C. of this Agreement, such suspension shall remain in effect until

the Government and the Non-Federal Sponsor agree to proceed or to terminate this Agreement. In the event that the Government suspends future performance under this Agreement in accordance with Article XIV.C. of this Agreement due to failure to reach agreement with the Non-Federal Sponsor on whether to proceed or to terminate this Agreement, or the failure of the Non-Federal Sponsor to provide funds to pay for cleanup and response costs or to otherwise discharge the Non-Federal Sponsor's responsibilities under Article XIV.C. of this Agreement, such suspension shall remain in effect until: 1) the Government and Non-Federal Sponsor reach agreement on how to proceed or to terminate this Agreement; 2) the Non-Federal Sponsor provides funds necessary to pay for cleanup and response costs and otherwise discharges its responsibilities under Article XIV.C. of this Agreement; 3) the Government continues work on the *Project*; or 4) the Government terminates this Agreement in accordance with the provisions of Article XIV.C. of this Agreement.

D. If after completion of the design portion of the *Project* the parties mutually agree in writing not to proceed with construction of the *Project*, the parties shall conclude their activities relating to the *Project* and conduct an accounting in accordance with Article VI.C. of this Agreement.

E. In the event that this Agreement is terminated pursuant to this Article or Article II.C. or Article XIV.C. of this Agreement, both parties shall conclude their activities relating to the *Project* and conduct an accounting in accordance with Article VI.C. of this Agreement. To provide for this eventuality, the Government may reserve a percentage of total Federal funds made available for the *Project* and an equal percentage of the total funds contributed by the Non-Federal Sponsor in accordance with Article II.B.2. and Article XVII.B.3. of this Agreement as a contingency to pay costs of termination, including any costs of resolution of contract claims and contract modifications.

F. Any termination of this Agreement or suspension of future performance under this Agreement in accordance with this Article or Article II.C. or Article XIV.C. of this Agreement shall not relieve the parties of liability for any obligation previously incurred. Any delinquent payment owed by the Non-Federal Sponsor shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13 week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3 month period if the period of delinquency exceeds 3 months.

ARTICLE XIV - HAZARDOUS SUBSTANCES

A. After execution of this Agreement and upon direction by the District Engineer, the Non-Federal Sponsor shall perform, or ensure performance of, any investigations for hazardous substances that the Government or the Non-Federal

Sponsor determines to be necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (hereinafter "CERCLA") (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, and rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for construction, operation, and maintenance of the *Project*. However, for lands, easements, and rights-of-way that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigations unless the District Engineer provides the Non-Federal Sponsor with prior specific written direction, in which case the Non-Federal Sponsor shall perform such investigations in accordance with such written direction.

1. All actual costs incurred by the Non-Federal Sponsor for such investigations for hazardous substances shall be included in *total project costs* and shared in accordance with the provisions of this Agreement, subject to an audit in accordance with Article X.C. of this Agreement to determine reasonableness, allocability, and allowability of such costs.

2. All actual costs incurred by the Government for such investigations for hazardous substances shall be included in *total project costs* and shared in accordance with the provisions of this Agreement.

B. In the event it is discovered through any investigation for hazardous substances or other means that hazardous substances regulated under CERCLA exist in, on, or under any lands, easements, or rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for construction, operation, and maintenance of the *Project*, the Non-Federal Sponsor and the Government, in addition to providing any other notice required by applicable law, shall provide prompt written notice to each other, and the Non-Federal Sponsor shall not proceed with the acquisition of the real property interests until the parties agree that the Non-Federal Sponsor should proceed.

C. The Government and the Non-Federal Sponsor shall determine whether to initiate construction of the *Project*, or, if already in construction, whether to continue with construction of the *Project*, suspend future performance under this Agreement, or terminate this Agreement for the convenience of the Government, in any case where hazardous substances regulated under CERCLA are found to exist in, on, or under any lands, easements, or rights-of-way that the Government determines, pursuant to Article III of this Agreement, to be required for construction, operation, and maintenance of the *Project*. Should the Government and the Non-Federal Sponsor determine to initiate or continue with construction of the *Project* after considering any liability that may arise under CERCLA, the Non-Federal Sponsor shall be responsible, as between the Government and the Non-Federal Sponsor, for the costs of cleanup and response, including the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall not be considered a part of *total project costs*. In

the event the Non-Federal Sponsor does not reach agreement with the Government on whether to proceed or to terminate this Agreement under this paragraph, or fails to provide any funds necessary to pay for cleanup and response costs or to otherwise discharge the Non-Federal Sponsor's responsibilities under this paragraph upon direction by the Government, the Government, in its sole discretion, may either terminate this Agreement for the convenience of the Government, suspend future performance under this Agreement, or continue work on the *Project*.

D. The Non-Federal Sponsor and the Government shall consult with each other in accordance with Article V of this Agreement in an effort to ensure that responsible parties bear any necessary cleanup and response costs as defined in CERCLA. Any decision made pursuant to paragraph C. of this Article shall not relieve any third party from any liability that may arise under CERCLA.

E. As between the Government and the Non-Federal Sponsor, the Non-Federal Sponsor shall be considered the operator of the *Project* for purposes of CERCLA liability. To the maximum extent practicable, the Non-Federal Sponsor shall operate, maintain, repair, rehabilitate, and replace the *Project* in a manner that will not cause liability to arise under CERCLA.

ARTICLE XV - NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or sent by telegram or mailed by first-class, registered, or certified mail, as follows:

If to the Non-Federal Sponsor:

Lake County Board of Commissioners
Building A, 3rd Floor
2293 N. Main Street
Crown Point, Indiana 46307

If to the Government:

District Commander
U.S. Army Corps of Engineers, Chicago District
231 S. LaSalle, Suite 1500
Chicago, Illinois 60604

B. A party may change the address to which such communications are to be directed by giving written notice to the other party in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

ARTICLE XVI - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XVII - HISTORIC PRESERVATION

A. The Government, as it determines necessary for the *Project*, shall perform any identification, survey, or evaluation of historic properties. Any costs incurred by the Government for such work shall be included in *total project costs* and shared in accordance with the provisions of this Agreement.

B. The Government, as it determines necessary for the *Project*, shall perform or ensure the performance of any mitigation activities or actions for historic properties or that are otherwise associated with historic preservation including data recovery activities.

1. Any costs incurred by the Government for such mitigation activities, except for data recovery activities associated with historic preservation, shall be included in *total project costs* and shared in accordance with the provisions of this Agreement.

2. As specified in Section 7(a) of Public Law 86-523, as amended by Public Law 93-291 (16 U.S.C. 469c(a)), the costs of data recovery activities associated with historic preservation for this *Project* and all other elements of the Section 219 Assistance Project shall be borne entirely by the Government up to the statutory limit of one percent of the total amount authorized to be appropriated to the Government for the Section 219 Assistance Project. None of the costs of data recovery activities associated with historic preservation up to such one percent limit shall be included in *total project costs*.

3. The Government shall not incur costs for data recovery activities associated with historic preservation that exceed the statutory one percent limit specified in paragraph B.2. of this Article unless and until the Assistant Secretary of the Army (Civil Works) has waived that limit and the Secretary of the Interior has concurred in the waiver in accordance with Section 208(3) of Public Law 96-515, as amended (16 U.S.C. 469c-2(3)). Any costs of data recovery activities associated with historic preservation that exceed the one percent limit shall not be

included in *total project costs* but shall be shared between the Non-Federal Sponsor and the Government consistent with the cost sharing requirements for the Section 219 Program, as follows: 25 percent will be borne by the Non-Federal Sponsor and 75 percent will be borne by the Government.

C. If, during its performance of *relocations* in accordance with Article III of this Agreement, the Non-Federal Sponsor discovers historic properties or other cultural resources that have not been evaluated by the Government pursuant to this Article, the Non-Federal Sponsor shall provide prompt written notice to the Government of such discovery. The Non-Federal Sponsor shall not proceed with performance of the *relocation* that is related to such discovery until the Government provides written notice to the Non-Federal Sponsor that it should proceed with such work.

ARTICLE XVIII - THIRD PARTY RIGHTS, BENEFITS, OR LIABILITIES

Nothing in this Agreement is intended, nor may be construed, to create any rights, confer any benefits, or relieve any liability, of any kind whatsoever in any third person not party to this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the District Engineer.

DEPARTMENT OF THE ARMY	LAKE COUNTY, INDIANA, BOARD OF COMMISSIONERS
BY: _____	BY: _____
Christopher T. Drew Colonel, U.S. Army	~~Gerry Scheub~~ President
DATE: 22 July 16	DATE: July 21, 2016

CERTIFICATE OF AUTHORITY

I, John S. Dull, do hereby certify that I am the principal legal officer of the Lake County Board of Commissioners, that the Lake County Board of Commissioners is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the Lake County Board of Commissioners in connection with the Calumet Township Storm Sewer Improvements Section 219 Environmental Infrastructure Project, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the Lake County Board of Commissioners have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 21 day of July 2016.

John S. Dull
County Commissioner Attorney

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

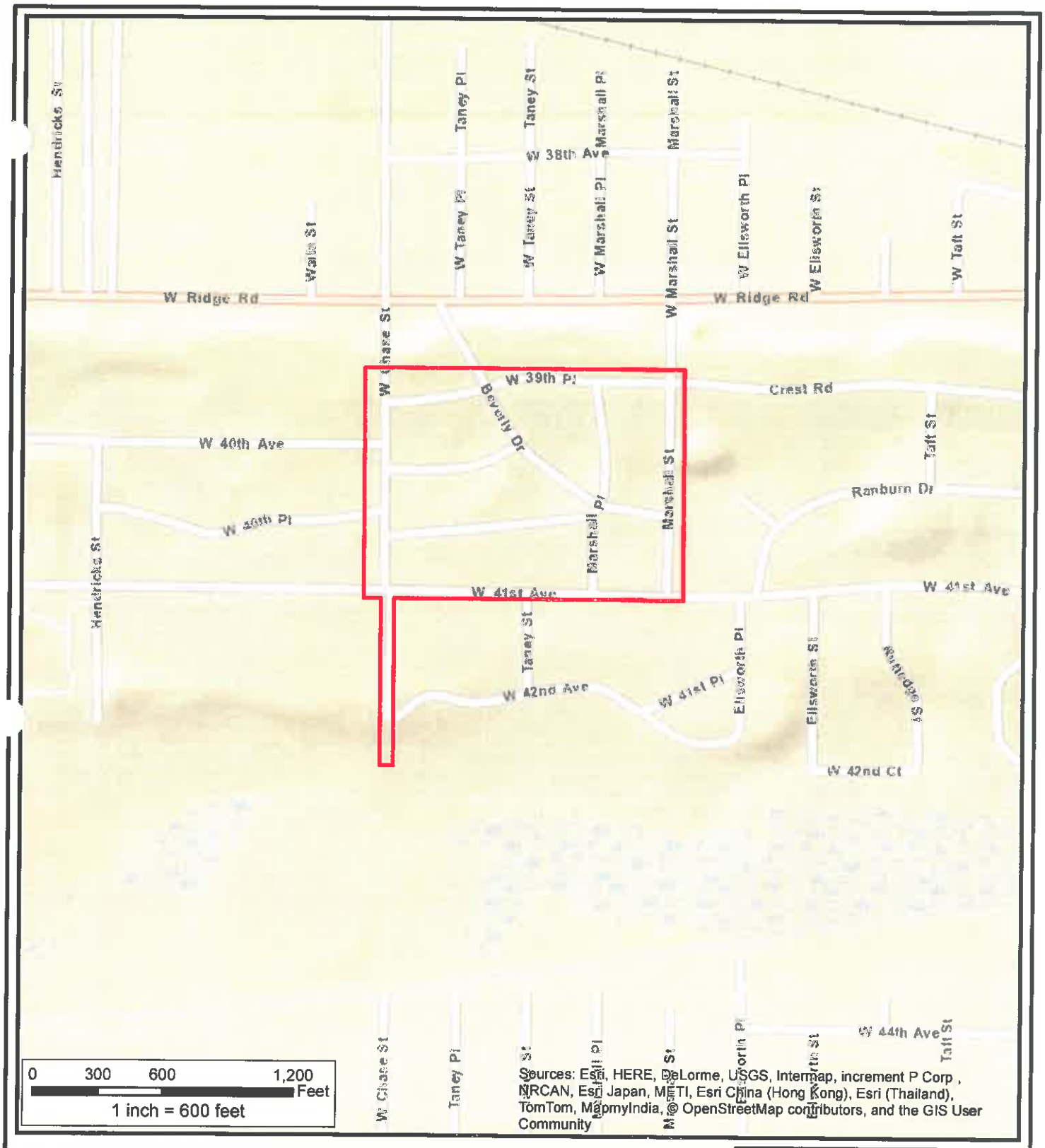
(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Gerry Scheub

Gerry Scheub
President
Lake County Board of Commissioners

DATE: July 21, 2016



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DSGN.	AMP	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

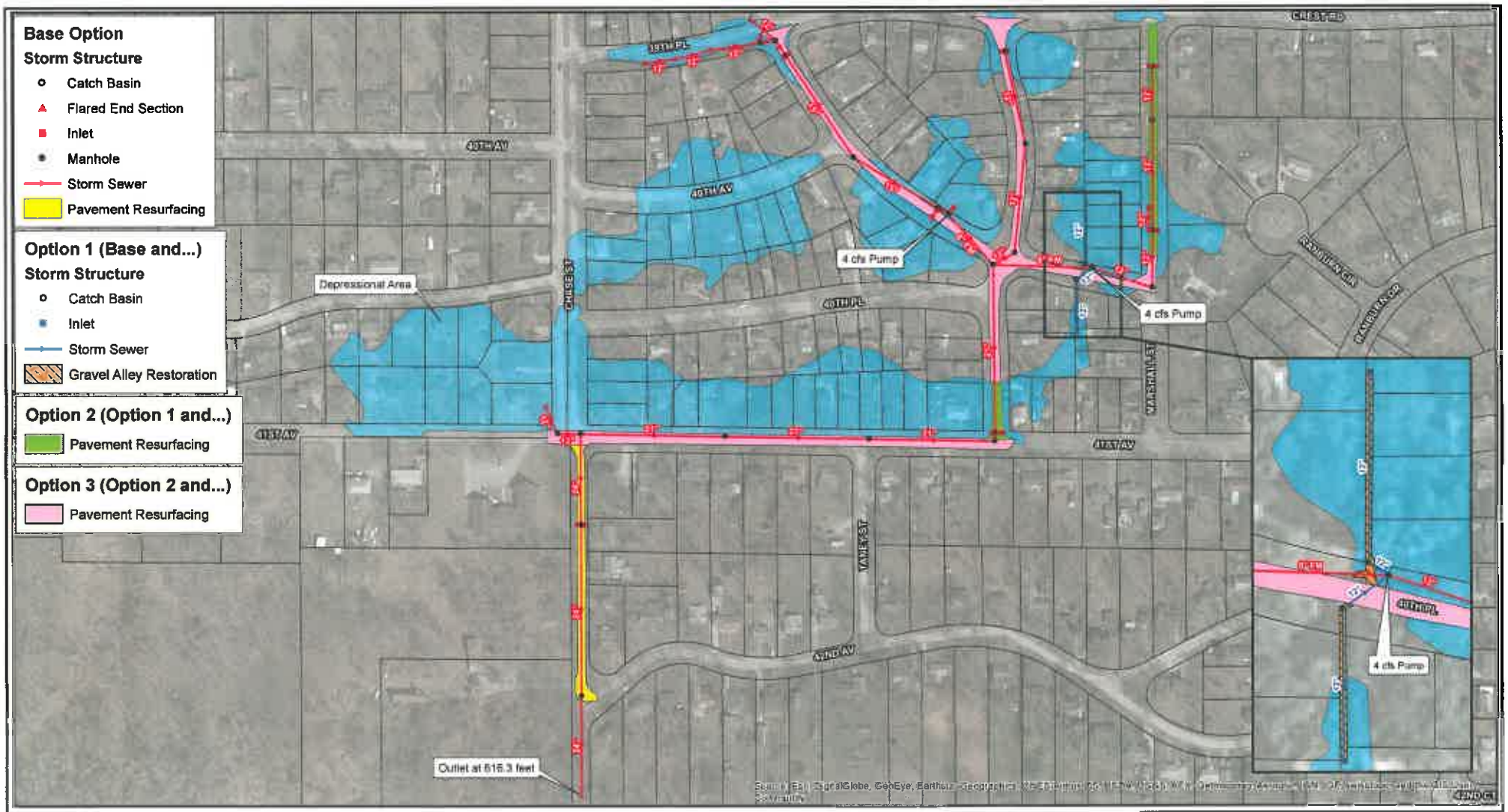
CLIENT
LAKE COUNTY
HIGHWAY DEPARTMENT

JOB#
160137

TITLE
LOCATION MAP

DATE
06/06/16

EXHIBIT 1



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NOTE: DRAWING NOT TO SCALE.

DSGN.	AMP	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

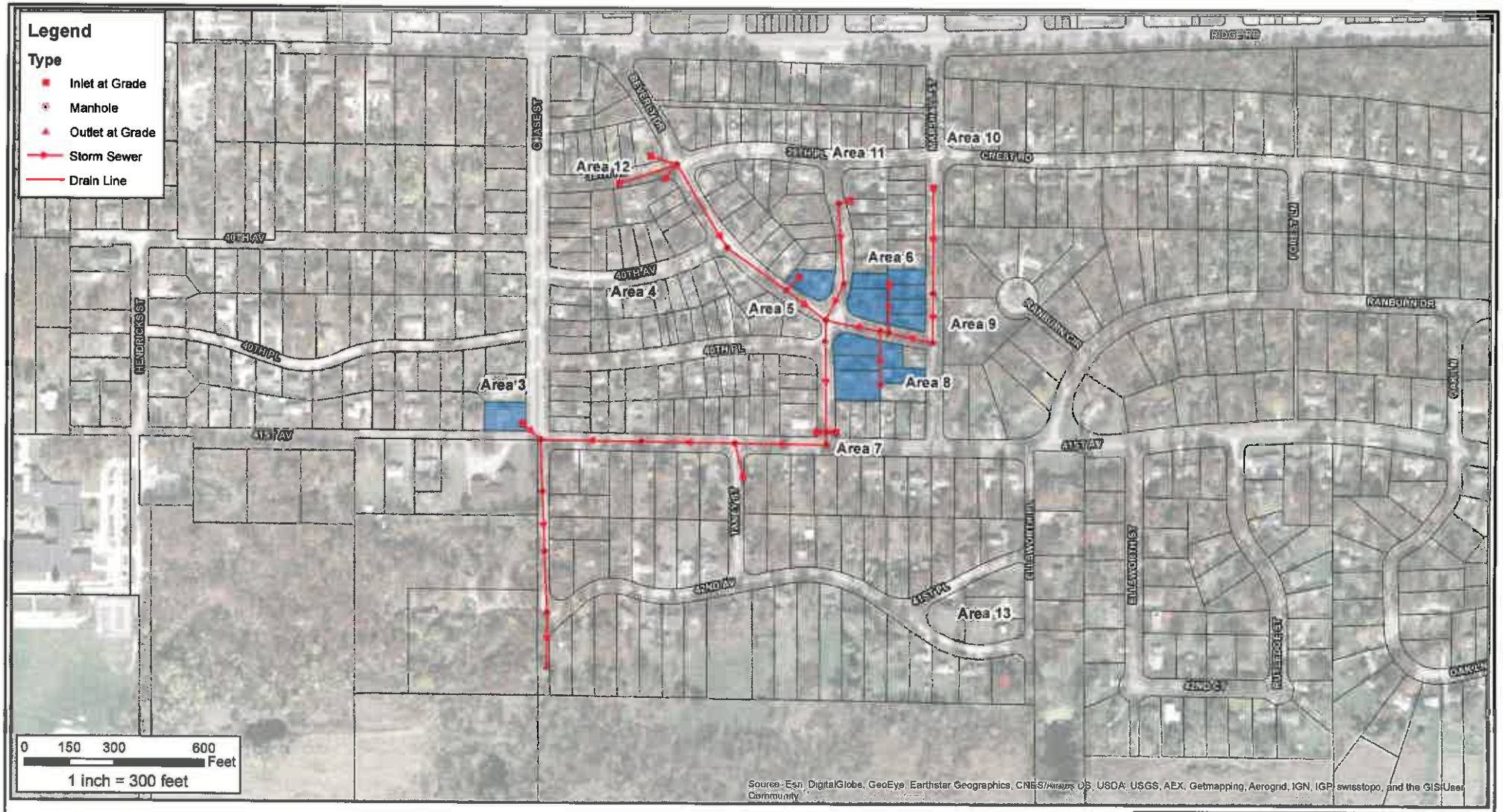
CLIENT: LAKE COUNTY HIGHWAY DEPARTMENT

PROJECT NO.: 160137

TITLE: PROPOSED 41ST AVENUE DRAINAGE PROJECT OPTIONS

DATE: 06/28/16

EXHIBIT



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DSGN.	AMP	CHKD.	

Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road, Suite 600
Rosemont, IL 60018
(847) 823-0500 / FAX (847) 823-0520

CLIENT: LAKE COUNTY HIGHWAY DEPARTMENT

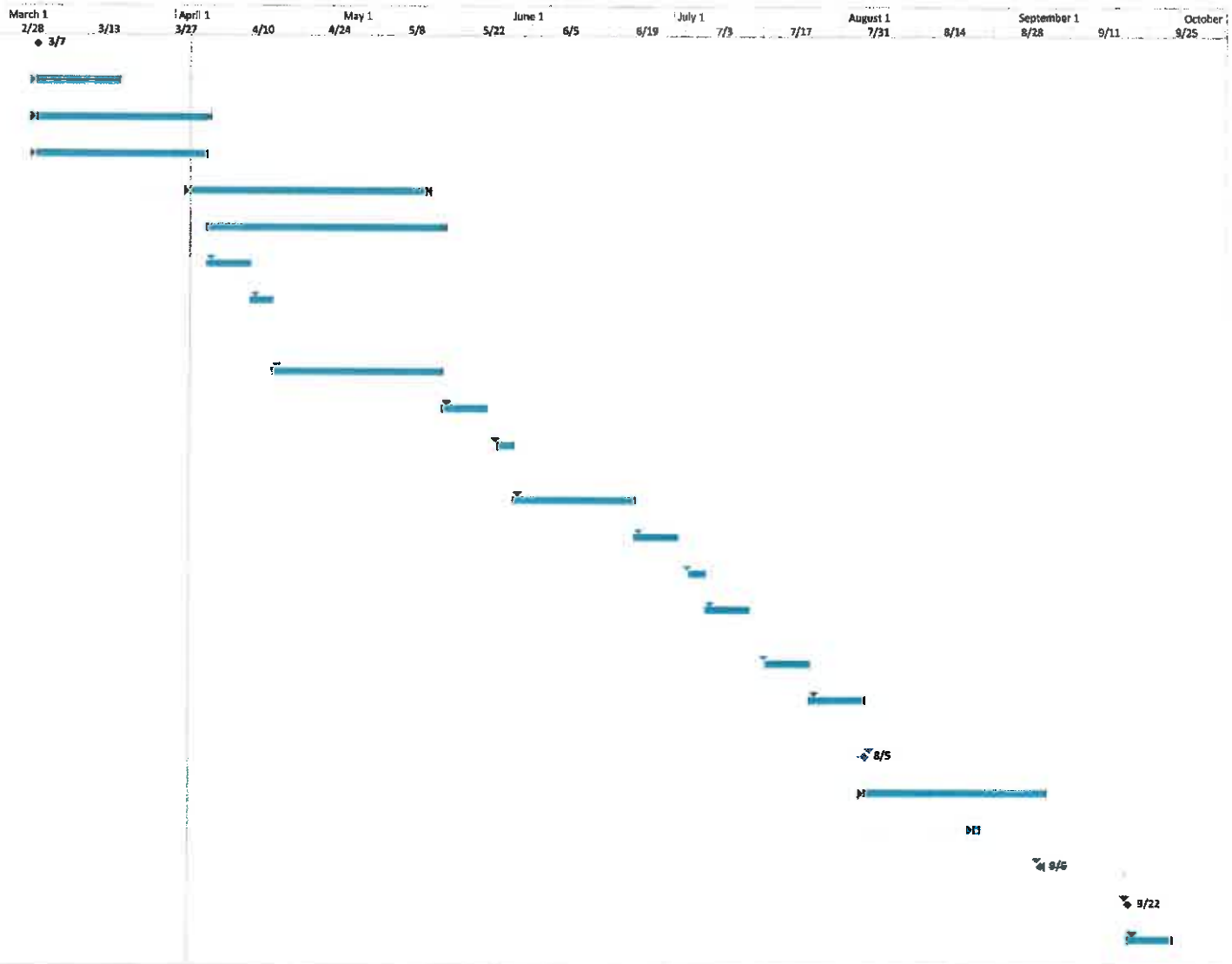
PROJECT NO.: 160137

TITLE: OVERALL PROPOSED EASEMENT PARCEL MAP

DATE: 06/16/16

EXHIBIT

ID	Task Name	Duration	Start	Finish	Predecessors
1	✓NOTICE TO PROCEED	0 days	Mon 3/7/16	Mon 3/7/16	
2	✓PRE-DESIGN CONFERENCE &	11 days	Mon 3/7/16	Mon 3/21/16	1SS
3	DELIVERY OF QC PLAN	23 days	Mon 3/7/16	Wed 4/6/16	1SS,2FF
4	PRELIMINARY DESIGN (PD) SUBMITTAL	23 days	Mon 3/7/16	Wed 4/6/16	1SS
5	GEOTECHNICAL INVESTIGATION	31 days	Mon 4/4/16	Mon 5/16/16	4SS,9FF,1SS,2S
6	SURVEY	31 days	Thu 4/7/16	Thu 5/19/16	9FF
7	USACE REVIEW & COMMENTS ON PD	6 days	Thu 4/7/16	Thu 4/14/16	4,3
8	PRELIMINARY DESIGN REVIEW / VALUE ENGINEERING (VE) MEETING	2 days	Fri 4/15/16	Mon 4/18/16	7
9	INITIAL 50% DESIGN SUBMITTAL (ID)	23 days	Tue 4/19/16	Thu 5/19/16	8
10	REVIEW & COMMENTS ON ID	6 days	Fri 5/20/16	Fri 5/27/16	9
11	INITIAL DESIGN REVIEW MEETING AND COMMENTS	3 days	Mon 5/30/16	Wed 6/1/16	10
12	FINAL 100% DESIGN SUBMITTAL (FD 100%)	16 days	Thu 6/2/16	Thu 6/23/16	11
13	USACE REVIEW AND COMMENTS ON FD	6 days	Fri 6/24/16	Fri 7/1/16	12
14	FD REVIEW MEETING AND COMMENTS	3 days	Mon 7/4/16	Wed 7/6/16	13
15	100% DESIGN BACK CHECK CERTIFIED FINAL (CF)	6 days	Thu 7/7/16	Thu 7/14/16	14
16	BACK CHECK OF CF SUBMITTAL	6 days	Mon 7/18/16	Mon 7/25/16	15
17	SOLICITATION SET (SS) AND SOLICITATION FOR BIDS SUBMITTAL	8 days	Tue 7/26/16	Thu 8/4/16	16
18	SOLICITATION FOR BID	0 days	Fri 8/5/16	Fri 8/5/16	17FS+1 day
19	BIDDING PROCESS	23 days	Fri 8/5/16	Tue 9/6/16	18SS
20	PRE-BID CONFERENCE	1 day	Thu 8/25/16	Thu 8/25/16	19SS+7 days
21	OPEN BIDS	0 days	Tue 9/6/16	Tue 9/6/16	19FF,20
22	CONTRACT AWARD	0 days	Thu 9/22/16	Thu 9/22/16	21FS+9 days
23	CONTRACT SET (CS) SUBMITTAL	6 days	Thu 9/22/16	Thu 9/29/16	22

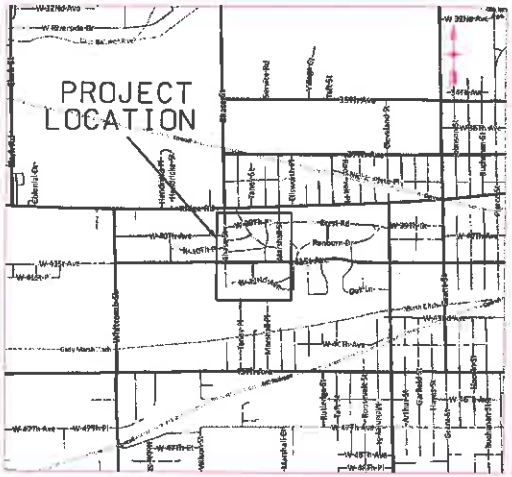


Project: Phase I Schedule
Date: Mon 4/4/16

Task | Split | Milestone | Summary | Project Summary | External Tasks | External Milestone | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | Deadline | Progress | Manual Progress

US Army Corps of Engineers®
Chicago District

41st AVENUE DRAINAGE PROJECT
UNINCORPORATED LAKE COUNTY
GARY, INDIANA
100% CONSTRUCTION PLANS



LOCATION MAP
(N.T.S.)

VICINITY MAP
(N.T.S.)

SOLICITATION NO.: W912P6-XX-X-XXXX
CONTRACT NO.: W912P6-XX-X-XXXX
ISSUE DATE: JUNE 23, 2016
FINAL SUBMITTAL - 100%

TOP ARMY PROJECT 2003 – TOP ARMY INSTALLATION 2001 – DEPARTMENT OF DEFENSE – VALUE ENGINEERING ACHIEVEMENT AWARD – CHICAGO DISTRICT

SHEET INDEX

SHEET #	SHEET REF	SHEET TITLE
1	G-001	Cover Sheet
2	G-002	General Notes and Abbreviations
3	C-001	Overall Site Plan and Legend
4	C-002	Roadway Typical Sections
5-6	CS-101.102	Alignment, Ties, and Benchmarks Existing Conditions and Removal Plans
7	C-101	Chase Street - Station 110+00 to 118+00
8	C-102	Chase Street - Station 118+00 to 120+00
9	C-103	W 41st Avenue - Station 67+00 to 77+00
10	C-104	Marshall Place - Station 80+00 to 90+00
11	C-105	W 39th Place - Station 150+00 to 153+00
12	C-106	W 40th Place Alleys - Station 110+00 to 115+50
13	C-107	Beverly Drive - Station 100+00 to 109+00
14	C-108	Beverly Drive - Station 109+00 to 112+00
15	C-109	Marshall Street - Station 140+00 to 146+50 Plan and Profiles
16	C-110	Chase Street - Station 110+00 to 113+00
17	C-111	Chase Street - Station 113+00 to 118+00
18	C-112	Chase Street - Station 118+00 to 120+00
19	C-113	W 41st Avenue - Station 67+00 to 72+00
20	C-114	W 41st Avenue - Station 72+00 to 77+00
21	C-115	Marshall Place - Station 80+00 to 85+50
22	C-116	Marshall Place - Station 85+50 to 90+00
23	C-117	W 39th Place - Station 150+00 to 153+00
24	C-118	W 40th Place Alleys - Station 110+00 to 115+50
25	C-119	Beverly Drive - Station 100+00 to 104+50
26	C-120	Beverly Drive - Station 104+50 to 109+00
27	C-121	Beverly Drive - Station 109+00 to 112+00
28	C-122	Marshall Street - Station 140+00 to 145+00
29	C-123	Marshall Street - Station 145+00 to 146+50 Landscaping and SE/SC Plans
30	C-124	Chase Street - Station 110+00 to 118+00
31	C-125	Chase Street - Station 118+00 to 120+00
32	C-126	W 41st Avenue - Station 67+00 to 77+00
33	C-127	Marshall Place - Station 80+00 to 90+00
34	C-128	W 39th Place - Station 150+00 to 153+00
35	C-129	W 40th Place Alleys - Station 110+00 to 115+50
36	C-130	Beverly Drive - Station 100+00 to 109+00
37	C-131	Beverly Drive - Station 109+00 to 112+00
38	C-132	Marshall Street - Station 140+00 to 146+50
39-40	C-501.502	Construction Details
41-44	C-503-506	Erosion Control Notes and Details
45	M-001	Electrical/Mechanical General Notes and Legend
46	M-101	Pump Station Proposed Site Plan
47	M-102	Beverly Drive Pump Station Plan and Profile
48	M-103	40th Place Pump Station Plan and Profile
49	E-101	Beverly Drive Electrical Plan
50	E-102	40th Place Electrical Plan
51	E-501	Electrical Details
52	M-501	Mechanical Details
53	C-507	Civil Details

THIS PROJECT WAS DESIGNED BY THE CHICAGO DISTRICT CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8162. SIGNATURES INDICATE OFFICIAL RECOMMENDATION OF ALL DRAWINGS IN THIS SET.

REVIEWED BY:

/S/
ATR TEAM LEADER DATE

SIGNATURE AFFIXED BELOW INDICATE OFFICAL RECOMMENDATION AND APPROVAL FOR ALL DRAWINGS CONTAINED IN THE SHEET INDEX.

APPROVAL RECOMMENDED BY:

/S/
PROJECT MANAGER DATE

APPROVED BY:

/S/
CHIEF, DESIGN BRANCH DATE

US Army Corps of Engineers®

LEE M. PELL PE | JUNE 2016
W912P6-XX-X-XXXX
W912P6-XX-X-XXXX
DESIGNED | BURKE PE | QA/QC PTS
24510 | N:\PROJ\MAIN\100%\Cover Sheet.dgn

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

COVER SHEET

G-001

100%

%PRODUCTION DATA 1%
%PRODUCTION DATA 2%
%PRODUCTION DATA 4%

GENERAL NOTES

1. THE HORIZONTAL DATUM IS BASED ON NAD 1983, NGS MONUMENT PID ME3214.
2. THE VERTICAL DATUM SHALL BE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.
3. THE TOPOGRAPHIC INFORMATION PRESENTED IS FROM THOMSON SURVEYING, LTD. AND REPRESENTS CONDITIONS EXISTING AT THAT TIME. ACTUAL CONDITIONS MAY VARY.
4. THE CONTRACTOR SHALL PERFORM ALL WORK WITHIN THE SPECIFIED WORK LIMITS.
5. SERVICES OF A REGISTERED LAND SURVEYOR ARE REQUIRED FOR LAYOUT OF WORK LIMITS AND FENCE LINE.
6. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND AS APPROVED BY THE GOVERNMENT.
7. THE UNDERGROUND UTILITIES INDICATED ARE BASED ON INFORMATION PROVIDED BY LOCAL UTILITY COMPANIES AND AVAILABLE INFORMATION. ADDITIONAL UTILITIES MAY EXIST WITHIN THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING EXISTING UTILITIES DURING CONSTRUCTION AND SHALL NOTIFY ARMY CORPS OF ENGINEERS/GOVERNMENT/ENGINEER IF ANY EXISTING UTILITIES ARE IN CONFLICT WITH THE PROPOSED IMPROVEMENTS.
8. THE ARMY CORP OF ENGINEERS, GOVERNMENT OR ENGINEER DOES NOT ASSUME RESPONSIBILITY THAT DURING CONSTRUCTION, UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED AND THAT THE ACTUAL LOCATIONS OF THOSE WHICH ARE SHOWN MAY BE DIFFERENT FROM THE LOCATIONS AS SHOWN ON THE PLANS. ANY PROTECTION, MAINTENANCE, RELOCATION, REPAIR WORK OR OTHER WORK SHALL BE AT NO COST TO THIS PROJECT OR GOVERNMENTAL UNIT. THESE UTILITIES INCLUDE BUT ARE NOT LIMITED TO GAS, WATER, ELECTRIC AND SEPTIC SYSTEMS, INCLUDING FIELD TILE.
9. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS, WHICH ARE HEREBY MADE A PART HEREOF:
   a. STANDARD SPECIFICATIONS, AS PREPARED BY THE INDIANA DEPARTMENT OF TRANSPORTATION;
10. THE WORK PERFORMED UNDER THIS CONTRACT SHALL IN NO WAY INTERFERE WITH THE NORMAL OPERATION OF ANY EXISTING UTILITY SERVICE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ITEMS OF EQUIPMENT REQUIRED TO MAINTAIN SUCH NORMAL OPERATION AT NO ADDITIONAL COST TO THE GOVERNMENT. THE COST ASSOCIATED FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CONTRACT.
11. ALL DISTURBED AREAS (NOT IMPERVIOUS IN NATURE) SHALL BE FINE GRADED AND RESTORED WITH TOPSOIL (MINIMUM 4-INCHES), EROSION CONTROL BLANKET, AND SEED, UNLESS OTHERWISE SPECIFIED.
12. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AS WELL AS SUPERVISION/ DIRECTION AND MEANS/METHODS OF CONSTRUCTION.
13. ALL TREE TRIMMING REQUIRED TO CONSTRUCT THE PROPOSED IMPROVEMENTS SHALL BE PERFORMED BY THE CONTRACTOR AND SHALL BE INCLUDED N THE COST FOR CLEARING AND GRUBBING.
14. NO MATERIALS SHALL BE DELIVERED TO THE JOB SITE OR EQUIPMENT MOBILIZED UNTIL ALL PERTINENT EQUIPMENT SUBMITTALS, ACCIDENT PREVENTION PLAN, ENVIRONMENTAL PROTECTION PLAN, AND QUALITY CONTROL PLAN HAVE BEEN APPROVED IN WRITING BY THE ARMY CORPS OF ENGINEERS - CHICAGO DISTRICT.
15. WHEREVER OBSTRUCTIONS NOT SHOWN ON THE PLANS ARE ENCOUNTERED DURING THE PROGRESS OF THE WORK AND INTERFERE TO SUCH AN EXTENT THAT ALTERATION IN THE PLANS IS REQUIRED, THE GOVERNMENT SHALL BE NOTIFIED PRIOR TO ANY CHANGES AND ANY SHALL ONLY BE AS APPROVED BY THE GOVERNMENT.
16. RECORD DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE GOVERNMENT AS SOON AS THE PROJECT IS COMPLETED IN ACCORDANCE WITH SPECIFICATION SECTION 01 10 00.00 03, PARAGRAPH 1.6. ANY CHANGE IN LENGTH, LOCATION OR ALIGNMENT SHALL BE SHOWN IN RED.
17. ANY PUBLIC OR PRIVATE IMPROVEMENTS (SIDEWALKS, CURB AND GUTTER, ETC.) DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN KIND. ALL SIGNS REMOVED OR RELOCATED SHALL BE REPLACED IN KIND UNLESS OTHERWISE NOTED. THIS WORK SHALL BE PAID FOR UNDER LANDSCAPE RESTORATION AND DEMOLITION AND REMOVAL OR CONSIDERED INCIDENTAL TO THE CONTRACT.
18. CONTRACTOR SHALL PERFORM WORK IN A MANNER THAT MAINTAINS EXISTING DRAINAGE PATTERNS. INTERCEPTOR DITCHES AND TEMPORARY DRAINAGE SWALES MAY BE REQUIRED TO MAINTAIN DRAINAGE.
19. ANY FOOTING DRAINS, SUMP PUMP DRAINS, AND OUTSIDE DRAINS ENCOUNTERED DURING CONSTRUCTION SHALL BE TIED INTO THE STORM SEWER SYSTEM TO ALLOW FOR POSITIVE DRAINAGE, AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
20. SURVEY MONUMENTATION (PROPERTY CORNERS, ETC.) LOST DURING CONSTRUCTION SHALL BE RESET BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
21. CONSTRUCTION STAGING AND EQUIPMENT STORAGE SHALL BE LIMITED TO THE RIGHT-OF-WAY AND OUTSIDE TREE PROTECTION FENCE LIMITS.
22. WORK LIMITS, INCLUDING CONSTRUCTION STAGING AND EQUIPMENT STORAGE, SHALL BE WITHIN EXISTING RIGHT-OF-WAY LIMITS OR TREE PROTECTION FENCE. CONTRACTOR SHALL INSTALL TREE PROTECTION FENCE AT START OF CONSTRUCTION AND SHALL NOT ENCROACH INTO TREE PROTECTION FENCE UNLESS APPROVED BY THE CONTRACTING OFFICER. CONSTRUCTION IN REAR YARD AREAS SHALL BE WITHIN LIMITS OF TREE PROTECTION FENCE.
23. ROADWAYS MAY BE CLOSED FOR CONSTRUCTION OF PROPOSED IMPROVEMENTS, HOWEVER, ACCESS TO EXISTING RESIDENTS MUST BE MAINTAINED AT ALL TIMES.
24. SPECIAL CARE AND CAUTION SHALL BE TAKEN THROUGHOUT THE WORK DURATION AS PROJECT AREA CONTAINS SEPTIC SYSTEMS AND WELLS.
25. ALL OFFSET DIMENSIONS SHOWN ON THE PLANS ARE TO THE CENTER OF THE STRUCTURE.

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT RESIDENTS AT ALL TIMES.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC FLOW TO RESIDENCES DURING THE PROJECT DURATION AND PROVIDE TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND LOCAL HIGHWAYS, 2003 EDITION, AND IN ACCORDANCE WITH SPECIFICATION NUMBER 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS.
3. ADVANCED WARNING CHANGEABLE MESSAGE BOARDS SHALL BE POSTED AT BOTH ENDS OF THE ROADWAY TWO WEEKS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WITHIN THE COUNTY'S RIGHT-OF-WAY NOTIFYING THE MOTORING PUBLIC OF THE UPCOMING WORK (ROAD CONSTRUCTION/LANE REDUCTION BEGINNING ________, EXPECT DELAYS, SEEK ALTERNATE ROUTES, ETC.). THE LANGUAGE MUST BE PROVIDED TO THE COUNTY FOR REVIEW/APPROVAL PRIOR TO THEIR ACTIVATION.THE MESSAGE BOARD LOCATION SHALL BE REVIEWED AND APPROVED BY THE COUNTY PRIOR TO PLACEMENT. THIS WILL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE COST OF MAINTENANCE OF TRAFFIC.

DEMOLITION GENERAL NOTES

1. CONTRACTOR SHALL PERFORM ALL DEMOLITION WORK IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR DEMOLITION WORK AND ASSOCIATED UTILITY DISCONNECT FEES.
3. ARMY CORP OF ENGINEERS - CHICAGO DISTRICT AND THE LAKE COUNTY HIGHWAY DEPARTMENT SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO THE START OF DEMOLITION.
4. THIS PLAN WAS PREPARED FROM TOPOGRAPHIC SURVEY PREPARED BY CHRISTOPHER B. BURKE ENGINEERING, LTD, DATED MAY 2016 AND AVAILABLE RECORDS. CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES SHOWN AND NOT SHOWN BEFORE COMMENCING WORK AND NOTIFY THE ENGINEER OR OWNER OF ANY DISCREPANCIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO BEGINNING DEMOLITION WORK FOR THE EXACT LOCATIONS OF THE UTILITIES. THE CONTRACTOR SHALL ARRANGE FOR THE DISCONNECTION, PROTECTION OR RELOCATION OF ANY EXISTING UTILITY SERVICES, INCLUDING WATER, SEWER, GAS, ELECTRIC, TELEPHONE AND CABLE. THE CONTRACTOR SHALL CALL I.U.P.P.S. PRIOR TO START OF DEMOLITION TO HAVE ALL EXISTING UTILITIES FIELD LOCATED. NOTIFY ENGINEER OF ANY DISCREPANCIES.
6. THE CONTRACTOR IS REQUIRED TO ASSURE HIMSELF OF LOCATION AND DEPTH OF EXISTING UTILITIES AND RELATED FEATURES AND SHALL REPORT AT ONCE TO THE ENGINEER ANY DISCREPANCIES WITH RESPECT TO INFORMATION INDICATED IN THE CONTRACT DOCUMENTS.
7. ALL CONSTRUCTION DEBRIS AND BUILDING MATERIALS SHALL BE REMOVED AND DISPOSED AT AN OFFSITE LOCATION IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
8. ALL UTILITIES NOTED TO REMAIN SHALL BE ADJUSTED TO THE FINAL GRADES AS PROVIDED ON THE PLAN AND PROFILE SHEETS.
9. GAS, TELEPHONE AND ELECTRIC DISTRIBUTION SYSTEM REMOVALS, ADJUSTMENTS, AND / OR RELOCATIONS SHALL BE DONE BY RESPECTIVE UTILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THIS WORK INCIDENTAL TO THE CONTRACT.
10. ALL EXISTING UTILITIES ARE TO REMAIN IN SERVICE UNLESS SPECIFICALLY SHOWN TO BE REMOVED.
11. ALL EXISTING TREES, BRUSH, AND MISCELLANEOUS APPURTENANCES, SHOWN TO BE REMOVED SHALL BE REMOVED AND DISPOSED AT AN OFFSITE LOCATION IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
12. THE CONTRACTOR SHALL ENSURE THAT ALL ADJOINING AREAS, INCLUDING ADJACENT STREETS AND DRIVEWAYS, SHALL BE FREE OF DEBRIS AT ALL TIMES.
13. ALL TREES TO REMAIN SHALL BE PROTECTED WITH SILT FENCE OR ORANGE CONSTRUCTION FENCES. PROTECTIVE FENCING SHALL BE PLACED AS SHOWN ON THE PLANS. CONSTRUCTION WITHIN THE FENCE WITHOUT PERMISSION FROM THE OWNER OR ENGINEER IS STRICTLY PROHIBITED. THIS SHALL BE INCLUDED IN THE COST OF EROSION CONTROL MEASURES.
14. ANY DAMAGE TO EXISTING STRUCTURES OR OBJECTS NOT SHOWN TO BE REMOVED OR REPLACED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS REQUIRED TO VIDEOTAPE AND/OR PHOTOGRAPH ALL EXISTING STRUCTURES AND CONSTRUCTION AREAS PRIOR TO START OF CONSTRUCTION IN ACCORDANCE WITH SPECIFICATION NUMBERS 01 10 00.00 03 PARAGRAPH 1.11 AND SPECIFICATION NUMBER 02 41 00 PART 1.
15. ALL MAILBOXES, FENCES, SIGNS, ETC. SHOWN TO BE REMOVED SHALL BE SALVAGED, CLEANED AND ALL CONCRETE REMOVED. ITEMS SHALL BE STORED FOR REPLACEMENT UPON COMPLETION OF PROPOSED IMPROVEMENTS AT A LOCATION DETERMINED BY THE ENGINEER.
16. ANY EXISTING STORM SEWER AND SUMP PUMP CONNECTIONS ENCOUNTERED SHALL BE CONNECTED TO THE PROPOSED STORM SEWER SYSTEM. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AT NO ADDITIONAL CHARGE TO THE GOVERNMENT.

STANDARD ABBREVIATIONS

ACOE	ARMY CORPS OF ENGINEERS
CB	CATCH BASIN
CL	CENTERLINE
CJ	CONSTRUCTION JOINT
COR	CONTRACTING OFFICER'S REPRESENTATIVE
COE	CORPS OF ENGINEERS
CMP	CORRUGATED METAL PIPE
DIA.	DIAMETER
DBH	DIAMETER AT BREAST HEIGHT
DTM	DIGITAL TERRAIN MODEL
D.I.P.	DUCTILE IRON PIPE
EHH	ELECTRICAL HAND HOLE
EMH	ELECTRICAL MAN HOLE
ELEV	ELEVATION
EJ	EXPANSION JOINT
EN	EXTRACTION WELL
FF	FINISH FLOOR
FH	FIRE HYDRANT
GF	GRADE AT FOUNDATION
G.D.	GRATE DRAIN
G.M.H.	GRATED MANHOLE
HWL	HIGH WATER ELEVATION
H	HORIZONTAL
IDOT	ILLINOIS DEPARTMENT OF TRANSPORTATION
LCP	LOCAL CONTROL PANEL
MH	MANHOLE
MIN	MINIMUM
MW	MONITORING WELL
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NWL	NATURAL WATER LINE
NAVD	NORTH AMERICAN VERTICAL DATUM
NTS	NOT TO SCALE
OSI	OCEAN SURVEYS, INC.
S	PIPE SLOPE
RCP	REINFORCED CONCRETE PIPE
SSP	STEEL SHEET PILE
TYP.	TYPICAL
VIF	VERIFY IN FIELD
V	VERTICAL
WLP	WELL POINTS
WL	WORK LIMIT
WP	WORK POINT

VERT./HORIZ. ALIGNMENT ABBREVIATIONS

PI	POINT OF ELEVATION
PC	POINT OF CURVATURE
CC	CENTER OF CURVATURE
R	RADIUS
L	LENGTH
	DEFLECTION ANGLE
D	DEGREE OF CURVE
STA.	STATION
	HORIZONTAL CONTROL POINT
	HORIZONTAL & VERTICAL CONTROL POINT

UTILITY MATRIX

	DATE SENT TO UTILITY COMPANY	RESPONSE DATE	COMMENTS
AT&T 302 S. EAST STREET CROWN POINT, INDIANA 46307 ATTN: ANGELO LAMANTIA	5/3/2016	6/15/2016	NO CONFLICTS ANTICIPATED - UNDERGROUND CROSSINGS AT APPROXIMATEY STA. 67+00, 82+00, AND 106+10
COMCAST 16 W. 84TH DRIVE MERRIVILLE, INDIANA 46410 ATTN: MR. LARRY SMITH	5/3/2016		
NIPSCO 801 E. 86TH AVENUE MERRIVILLE, INDIANA 46410 ATTN: MR. DOUG BENDA	5/3/2016	6/15/2016	NO CONFLICTS ANTICIPATED - NO UNDERGROUND WITHIN PROJECT LIMITS; OVERHEAD ON SOUTH SIDE OF 41st AVENUE
QWEST COMMUNICATIONS 13057 SOUTH MANOR AVENUE PALOS HEIGHTS, IL 60463 ATTN: MR. KEVIN HUFF	5/4/2016		

US Army Corps of Engineers

DESIGNED BY: LEE M. FELL, PE	ISSUE DATE: JUNE 2016	
DRAWN BY:	SOLICITATION NO.: W912P6-XX-X-XXXX	
CHECKED BY:	CONTRACT NO.: W912P6-XX-X-XXXX	
SUBMITTED BY: THOMAS T. BURKE, PE	PROJECT CODE:	
SIZE: ANSI D	FILE NAME:	

MARK	DESCRIPTION	DATE

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

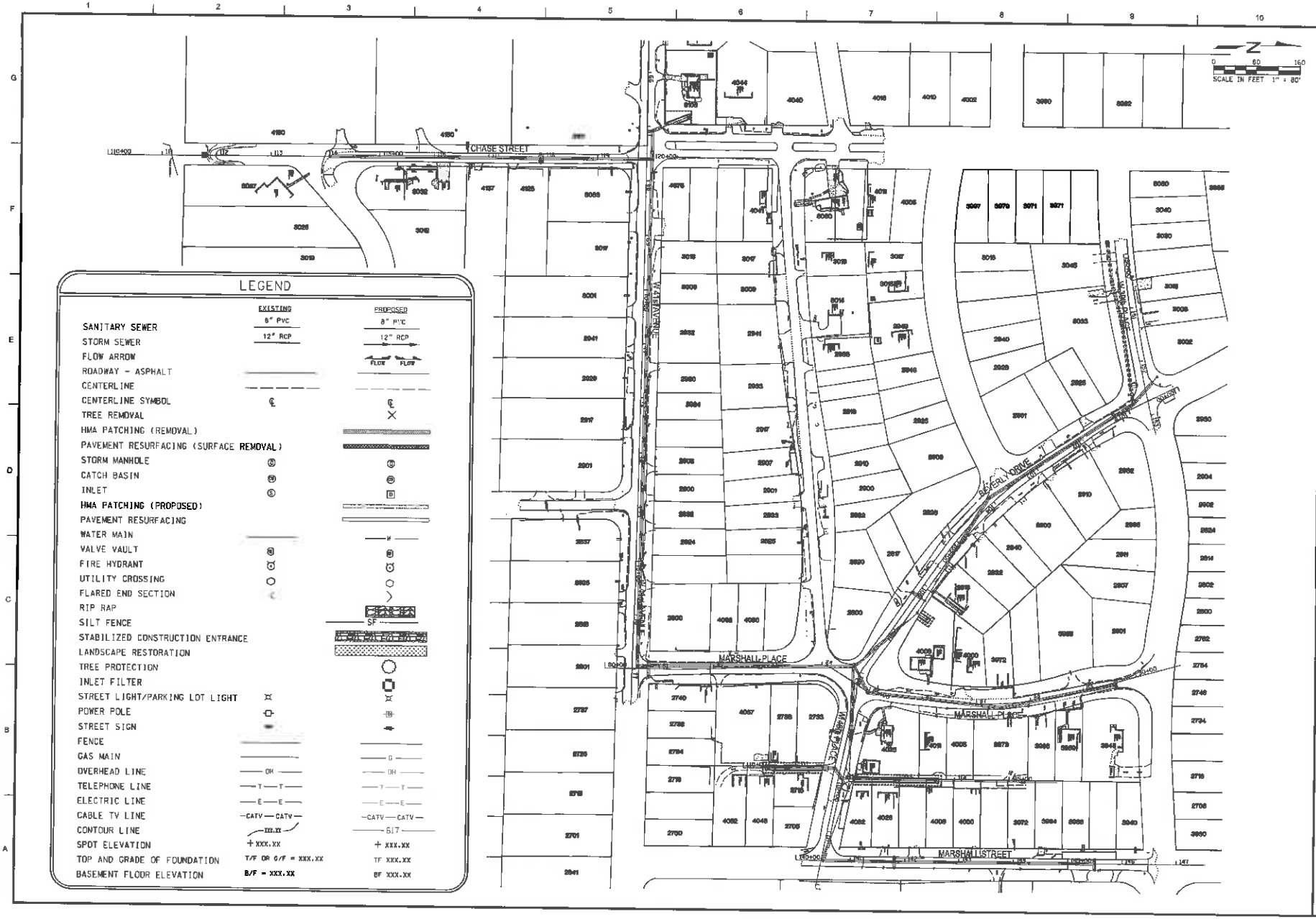
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

GENERAL NOTES
AND
ABBREVIATIONS

SHEET ID
G-002
SHEET 2 OF 53

100%


CHASE STREET
WATERVIEW DRIVE
MARSHALL PLACE
MARSHALL STREET
BEVERLY DRIVE
SCALE IN FEET 1" = 80'
LEGEND
EXISTING
PROPOSED
SANITARY SEWER
STORM SEWER
FLOW ARROW
ROADWAY - ASPHALT
CENTERLINE
CENTERLINE SYMBOL
TREE REMOVAL
HMA PATCHING (REMOVAL)
PAVEMENT RESURFACING (SURFACE REMOVAL)
STORM MANHOLE
CATCH BASIN
INLET
HMA PATCHING (PROPOSED)
PAVEMENT RESURFACING
WATER MAIN
VALVE VAULT
FIRE HYDRANT
UTILITY CROSSING
FLARED END SECTION
RIP RAP
SILT FENCE
STABILIZED CONSTRUCTION ENTRANCE
LANDSCAPE RESTORATION
TREE PROTECTION
INLET FILTER
STREET LIGHT/PARKING LOT LIGHT
POWER POLE
STREET SIGN
FENCE
GAS MAIN
OVERHEAD LINE
TELEPHONE LINE
ELECTRIC LINE
CABLE TV LINE
CONTOUR LINE
SPOT ELEVATION
TOP AND GRADE OF FOUNDATION
BASEMENT FLOOR ELEVATION
US Army Corps of Engineers
MARK
DESCRIPTION
DATE
DESIGNED BY:
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
SIZE
ANSI D
FILE NAME
ISSUE DATE:
JUNE 2016
SOLICITATION NO.:
W912DR-XX-XXXX
CONTRACT NO.:
W912DR-XX-XXXX
PROJECT CODE:
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
9579 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA
OVERALL SITE PLAN AND LEGEND
SHEET ID
C-001
SHEET 3 OF 53

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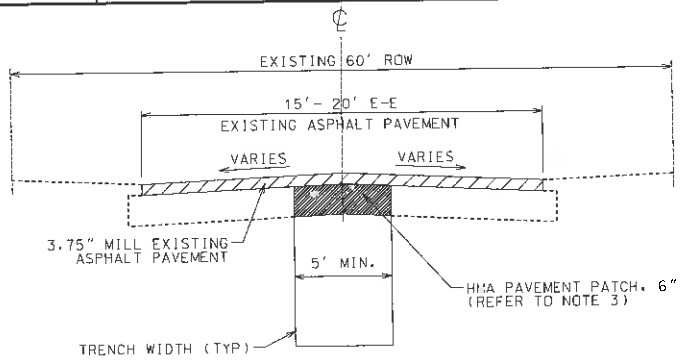
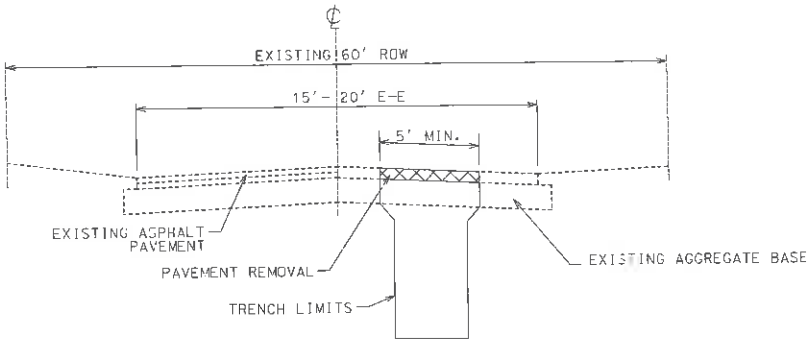


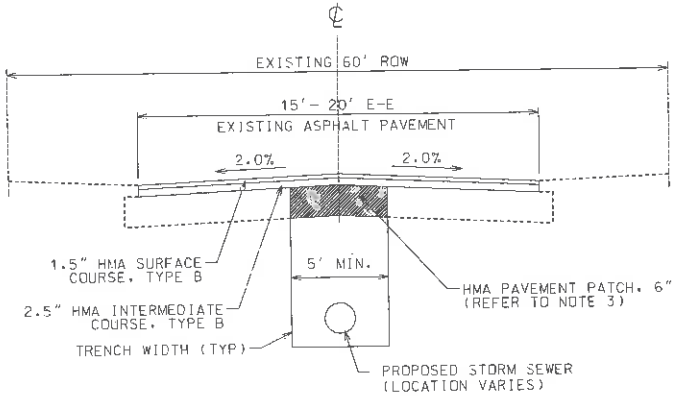
RESURFACING TYPICAL CROSS SECTION - REMOVAL

NOT TO SCALE



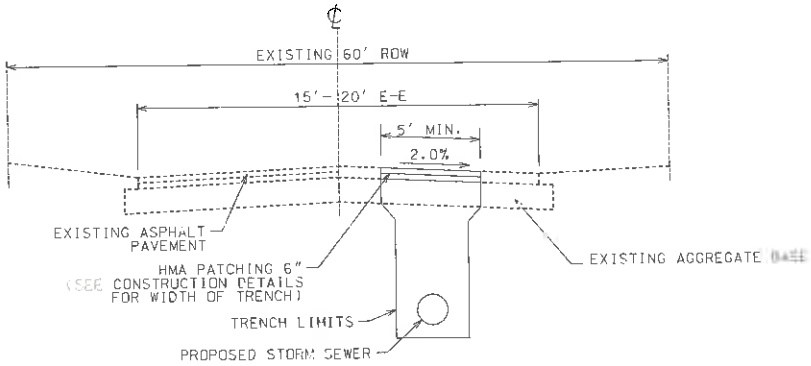
TYPICAL CROSS SECTION - HMA PATCHING - REMOVAL

NOT TO SCALE



RESURFACING TYPICAL CROSS SECTION - PROPOSED

NOT TO SCALE



TYPICAL CROSS SECTION - HMA PATCHING - PROPOSED

NOT TO SCALE

GENERAL NOTES:

1. ALL WORK, INCLUDING CONSTRUCTION STAGING, SHALL BE LIMITED TO WITHIN THE RIGHT-OF-LIMITS, AS SHOWN ON THE ENGINEERING PLANS. NO WORK SHALL BE PERFORMED ON PRIVATE PROPERTY, UNLESS PERMISSION IS GRANTED FROM THE HOMEOWNER AND APPROVED BY THE ENGINEER.
2. PAVEMENT SHALL BE RESTORED IN ACCORDANCE WITH THE DETAIL ON THIS SHEET AND AS SHOWN IN THE CONSTRUCTION DETAILS.
3. HMA PATCHING 6" SHALL BE PAID BE MEASURED AND PAID FOR PER SQUARE YARD PRICE BASED ON THE NEAT LINE LIMITS AND DETAILS AS SHOWN ON THE ENGINEERING PLANS.
4. EXISTING ASPHALT PAVEMENT SHALL BE MILLED 3.75" AVERAGE THICKNESS AND OVERLAID WITH 1.5" HOT-MIX ASPHALT, TYPE B, SURFACE AND 2.5" HOT-MIX ASPHALT, TYPE B, INTERMEDIATE.
5. PAVEMENT MILLING AND RE-SURFACING SHALL BE PAID PER SQUARE YARD AS SHOWN ON THE ENGINEERING PLANS. ANY APPROACH MILLING OR SPECIALTY CONSTRUCTION NECESSARY SHALL BE INCLUDED IN THE SQUARE YARD PRICE PROVIDED. NO SEPARATE PAYMENT WILL BE MADE.
6. HMA WEDGE, TYPE B, INTERMEDIATE SHALL BE USED TO MEET CROSS SLOPES NOTED ABOVE. HMA WEDGE TYPE B, INTERMEDIATE, WILL NOT BE PAID FOR SEPERATLY AND SHALL BE INCLUDED WITH OTHER PAY ITEMS.

GENERAL NOTES:

1. ALL WORK, INCLUDING CONSTRUCTION STAGING, SHALL BE LIMITED TO WITHIN THE RIGHT-OF-LIMITS, AS SHOWN ON THE ENGINEERING PLANS. NO WORK SHALL BE PERFORMED ON PRIVATE PROPERTY, UNLESS PERMISSION IS GRANTED FROM THE HOMEOWNER AND APPROVED BY THE ENGINEER.
2. PAVEMENT SHALL BE RESTORED IN ACCORDANCE WITH THE DETAIL ON THIS SHEET AND AS SHOWN IN THE CONSTRUCTION DETAILS.
3. HMA PATCHING 6" SHALL BE PAID BE MEASURED AND PAID FOR PER SQUARE YARD PRICE BASED ON THE NEAT LINE LIMITS AND DETAILS AS SHOWN ON THE ENGINEERING PLANS.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE A. FEILER, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DQ-16-B-0006
CONTRACT NO.: W912DQ-XX-C-XXXX
PROJECT CODE: XXXXXX
FILE NAME: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

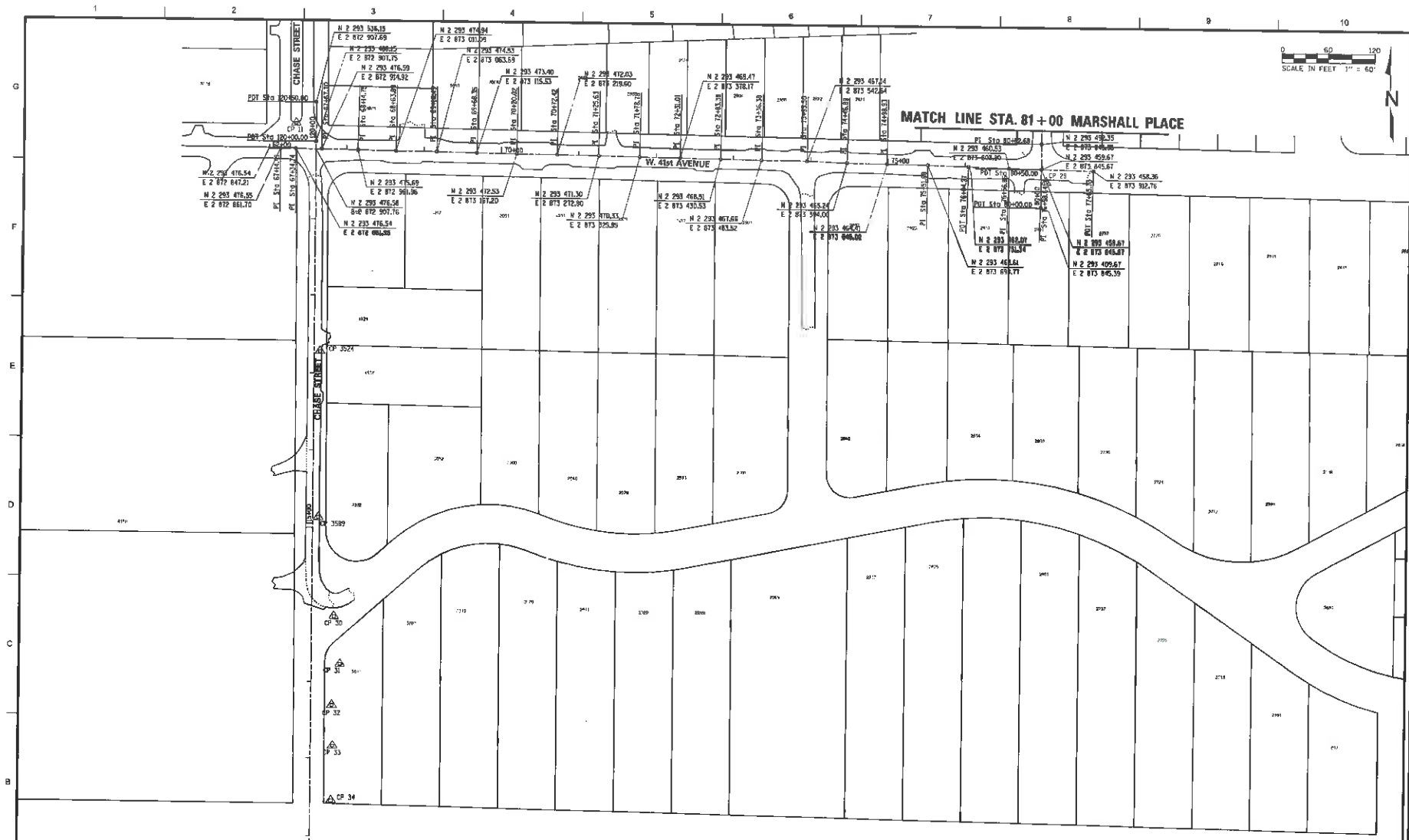
9174 W. HIGGINS ROAD, SUITE 350
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
4TH AVENUE DRAINAGE PROJECT
GARY, INDIANA

ROADWAY TYPICAL SECTIONS

SHEET ID
C-002
SHEET 4 OF 53

100%



HORIZONTAL CONTROL POINTS						
POINT NO.	NORTHING (Y)	EASTING (X)	ELEVATION	DESCRIPTION	STATION	OFFSET
CHASE STREET						
CP 34	2,292,631.46	2,872,935.06	614.11	IPS	111+45.37	21.4' RT
CP 33	2,292,302.39	2,872,937.30	617.87	IPS	112+85.29	28.7' RT
CP 32	2,292,205.72	2,872,935.17	621.35	NAIL	112+58.75	22.2' RT
CP 31	2,292,108.81	2,872,945.65	621.13	IPS	113+23.32	37.1' RT
CP 30	2,292,011.84	2,872,937.41	627.37	NAIL	113+85.36	28.7' RT
CP 3589	2,292,539.52	2,872,915.69	631.53	PKS	115+13.37	7.4' RT
CP 3524	2,293,214.26	2,872,915.74	627.41	PKS	117+20.13	7.1' RT
CP 11	2,293,409.54	2,872,891.82	626.61	PK	120+25.42	25.5' LT

HORIZONTAL CONTROL POINTS						
POINT NO.	NORTHING (Y)	EASTING (X)	ELEVATION	DESCRIPTION	STATION	OFFSET
W. 41st AVENUE						
CP 11	2,293,409.54	2,872,891.82	626.61	PK	61+34.80	33.0' LT
CP 29	2,293,443.13	2,873,862.03	628.16	IPS CAP	77+05.31	16.4' RT

NOTES:
1. THE HORIZONTAL DATUM IS BASED ON NAD 1983, NGS MONUMENT PID ME3214.
2. THE VERTICAL DATUM SHALL BE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LESLIE FELL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS T. GIBBRE, PE
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DR-X-XXXX
CONTRACT NO.: W912DR-X-XXXX
PROJECT CODE: XXXXXXXXXX
FILE NAME: 01-CS-101 Alignment Ties, Benchmarks.dgn
SIZE: A(22X17)

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

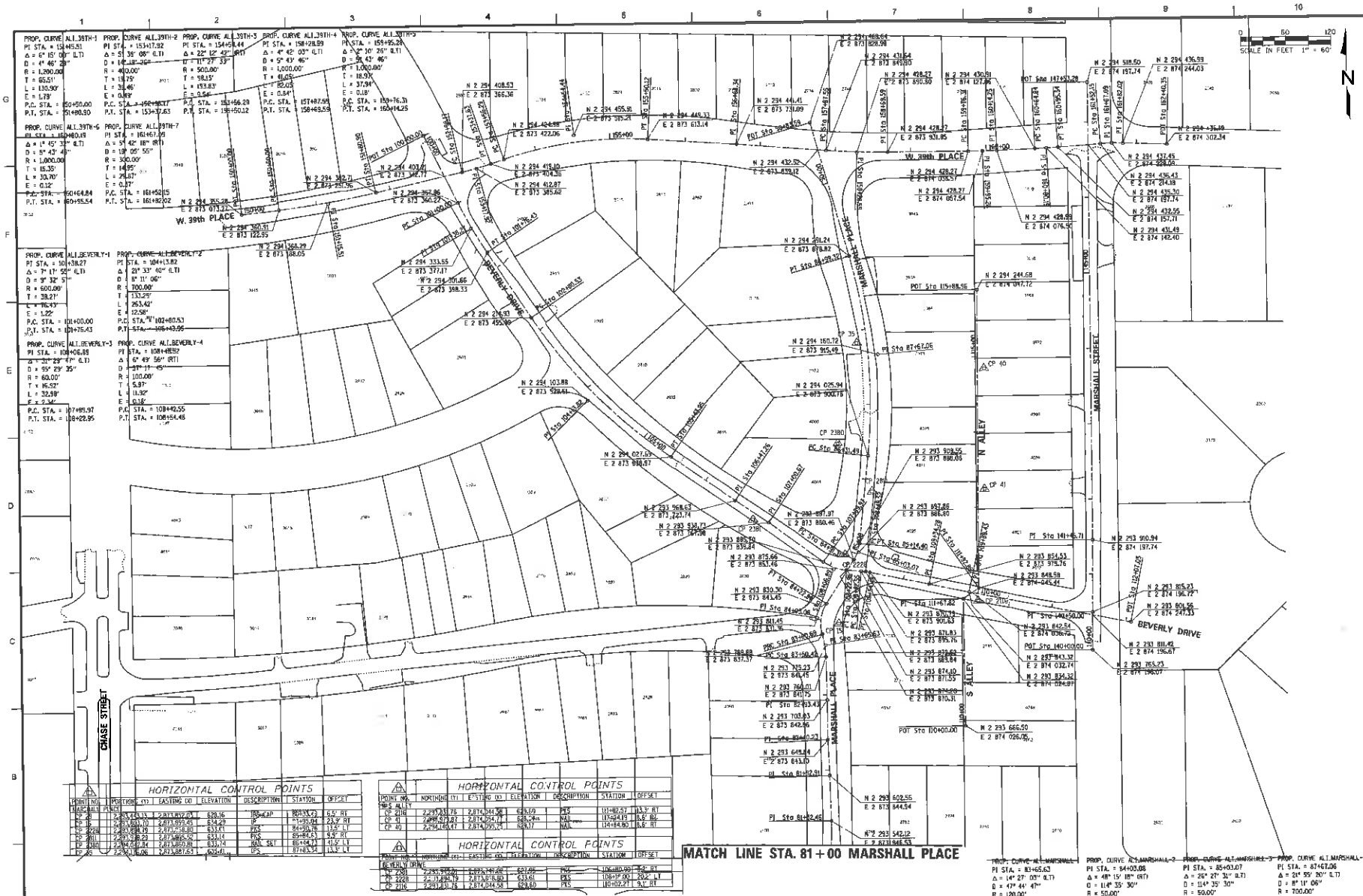
6975 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

ALIGNMENT TIES, AND BENCHMARKS

SHEET ID
CS-101
SHEET 6 OF 53

100%



HORIZONTAL CONTROL POINTS						
POINTS NO. MARSHALL PLACE	NORTHING (Y)	EASTING (X)	ELEVATION	DESCRIPTION	STATION	OFFSET
CP 39	2,293,243.13	2,873,857.03	629.16	TBS CAP	80+33.43	9.5' RT
CP 38	2,293,653.70	2,873,859.45	634.29	IP	81+95.94	23.9' RT
CP 2228	2,293,694.76	2,873,858.80	633.41	PKS	84+99.76	11.5' LT
CP 2381	2,293,738.29	2,873,860.50	633.14	PKS	89+84.63	9.5' RT
CP 2380	2,294,062.84	2,873,860.81	633.74	RAIL SET	86+44.73	41.5' LT
CP 36	2,293,136.06	2,873,861.61	630.61	IPS	87+83.54	13.3' LT

HORIZONTAL CONTROL POINTS						
POINT NO. S ALLEY	NORTHING (Y)	EASTING (X)	ELEVATION	DESCRIPTION	STATION	OFFSET
CP 2216	2,293,983.76	2,874,044.58	629.60	PKS	110+82.57	13.3' RT
CP 41	2,294,073.87	2,874,054.77	629.24	NAIL	112+64.13	16.6' RT
CP 40	2,294,165.47	2,874,055.24	629.17	NAIL	114+64.80	16.6' RT

HORIZONTAL CONTROL POINTS						
POINT NO. BEVERLY DRIVE	NORTHING (Y)	EASTING (X)	ELEVATION	DESCRIPTION	STATION	OFFSET
CP 2381	2,293,738.29	2,873,860.50	633.14	PKS	106+80.99	9.5' RT
CP 2228	2,293,694.76	2,873,858.80	633.41	PKS	108+59.00	202.1' LT
CP 2216	2,293,983.76	2,874,044.58	629.60	PKS	110+02.27	9.1' RT

NOTES:
1. THE HORIZONTAL DATUM IS BASED ON NAD 1983, NGS MONUMENT PID ME3214.
2. THE VERTICAL DATUM SHALL BE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: [redacted] ISSUE DATE: JUNE 2016
DRAWN BY: SOLICITATION NO.: W912P5-XX-XXXXX
CHECKED BY: CONTRACT NO.: W912P5-XX-XXXXX
SUBMITTED BY: PROJECT CODE:
SIZE: ANSI D FILE NAME: [redacted]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

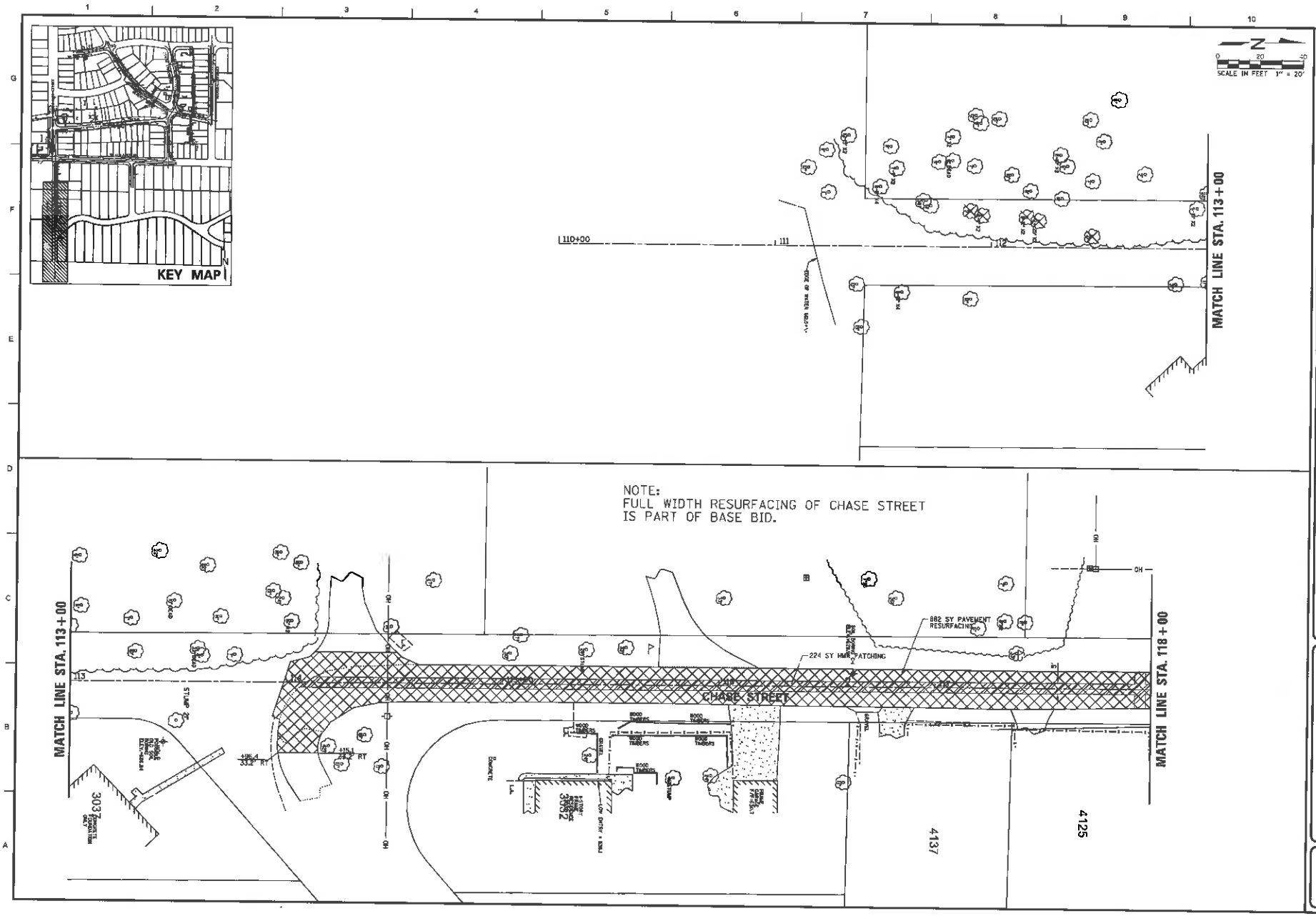
9275 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

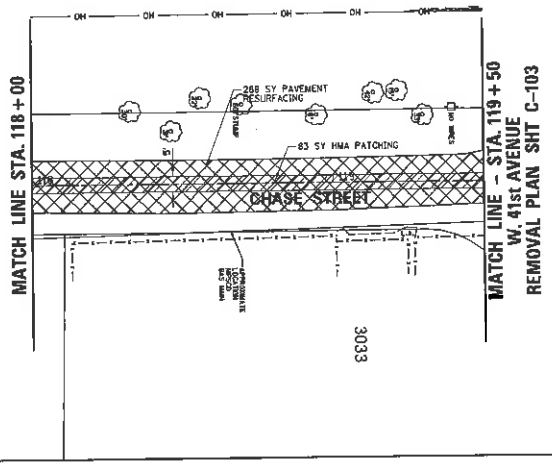
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
QUINCY, MISSOURI

ALIGNMENT, TIES, AND BENCHMARKS

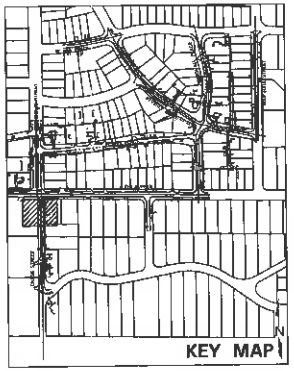
SHEET ID
CS-102
SHEET 9 OF 53

100%


KEY MAP
SCALE IN FEET 1" = 20'
MATCH LINE STA. 113+00
MATCH LINE STA. 118+00
NOTE:
FULL WIDTH RESURFACING OF CHASE STREET
IS PART OF BASE BID.
CHASE STREET
882 SY PAVEMENT RESURFACING
224 SY HMA PATCHING
4137
4125
US Army Corps of Engineers
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA
EXISTING CONDITIONS AND REMOVAL PLAN
CHASE STREET
STATION 110+00 to 118+00
SHEET ID
C-101
100%



NOTE:
FULL WIDTH RESURFACING OF CHASE STREET
IS PART OF BASE BID.



SCALE IN FEET 1" = 20'

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FELLPE
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912PL-XX-XXXX
CONTRACT NO.: W912PL-XX-XXXX
PROJECT CODE: 74XXXXXX
FILE NAME: N:\CHICAGO\ENGINEERING\Design\DWG\

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

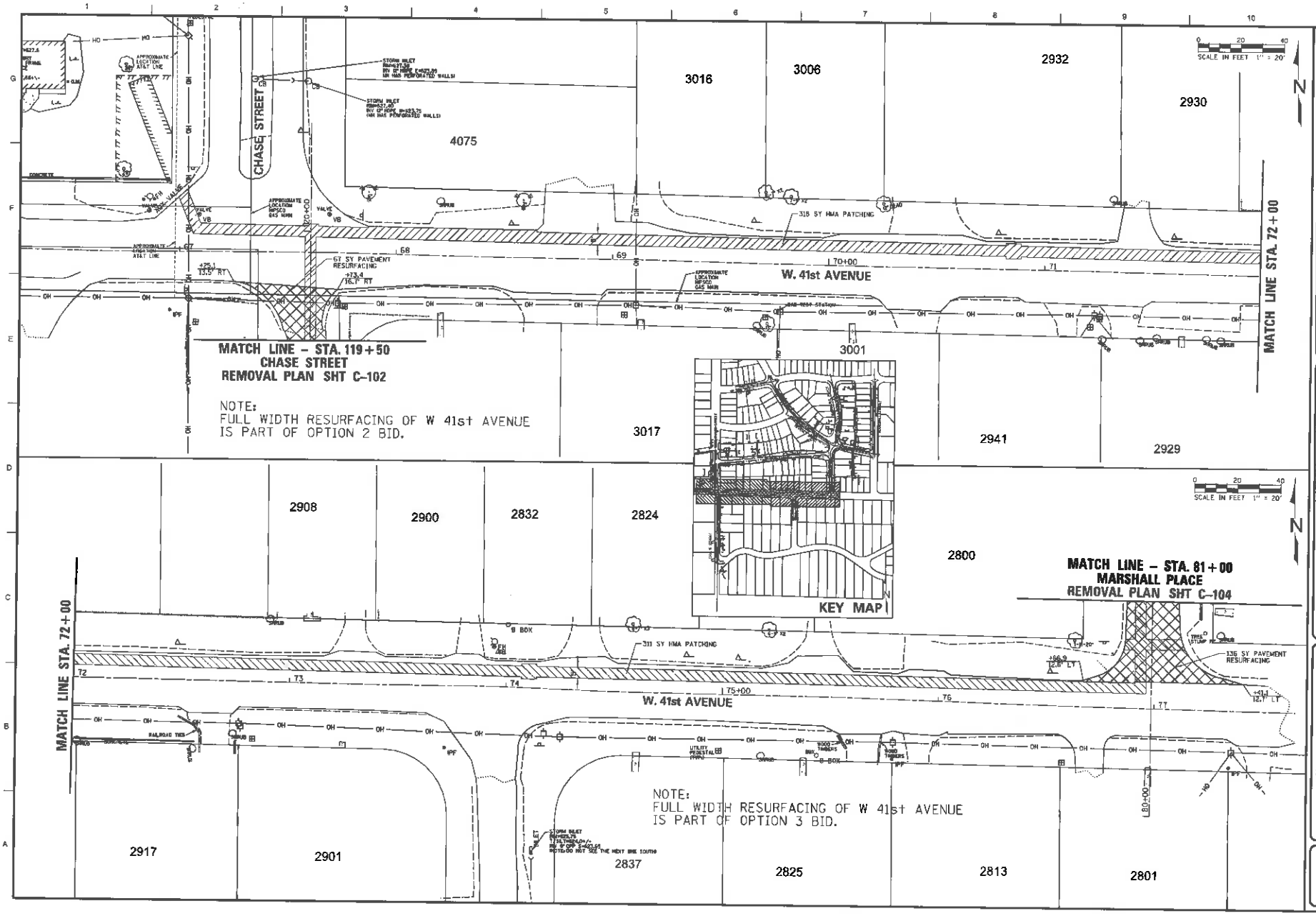
9375 W. HIGGINS ROAD, SUITE 500
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EXISTING CONDITIONS AND REMOVAL PLAN
CHASE STREET
STATION 118+00 to 120+00

SHEET ID
C-102
SHEET 8 OF 53

100%



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FEEL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS J. BURKE, PE
DATE:
ADD ID
FILE NAME:

ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912P8-16-X-XXXX
CONTRACT NO.: W912P8-XX-X-XXXX
PROJECT CODE: 74420001

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

9979 W. HIGGINS ROAD, SUITE 100
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EXISTING CONDITIONS AND REMOVAL PLAN
W 41st AVENUE
STATION 67+00 to 77+00

SHEET ID
C-103
SHEET 8 OF 53

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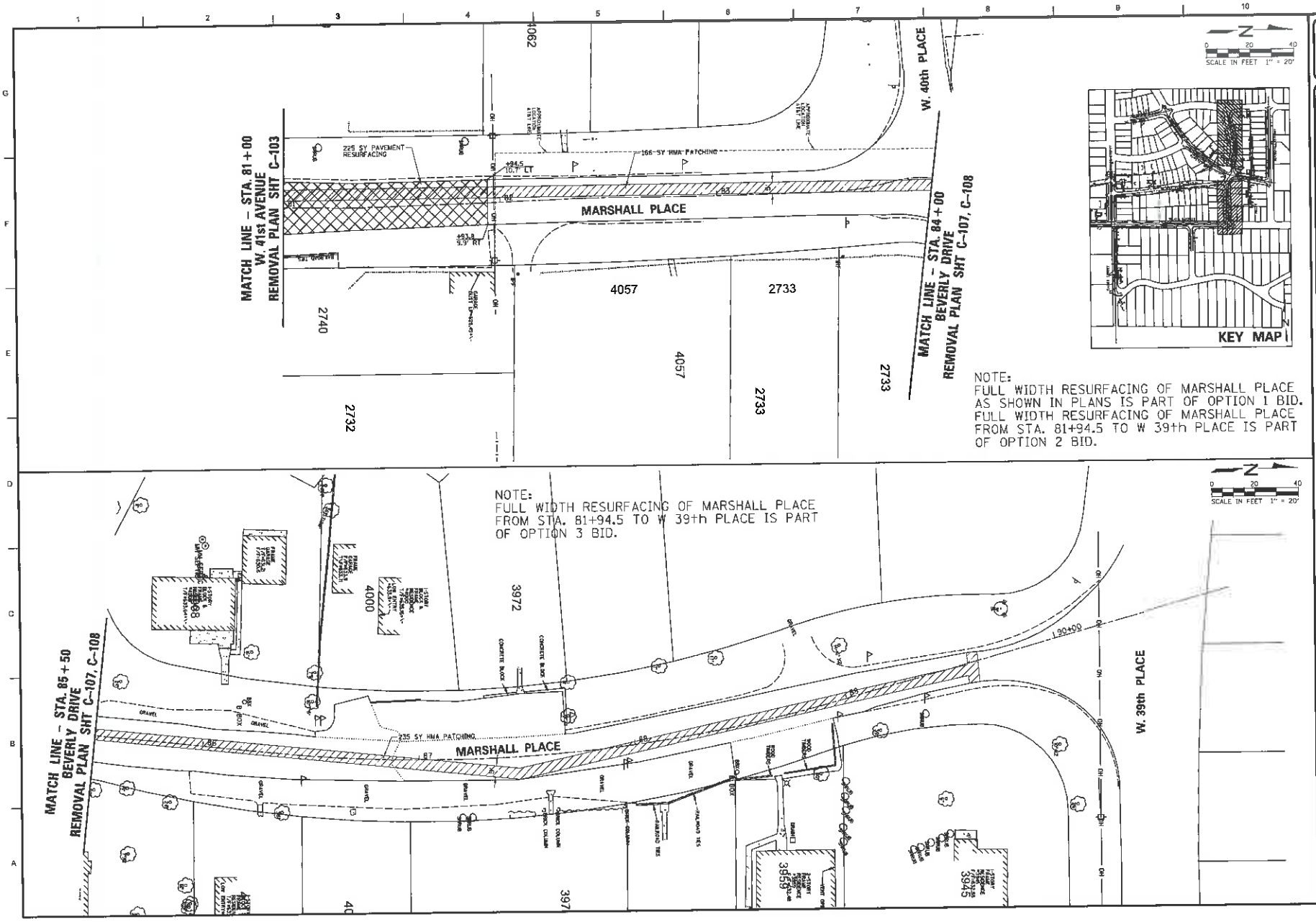

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DQ-XX-B-XXXX
CONTRACT NO.: W912DQ-XX-C-XXXX
PROJECT CODE:

DESIGNED BY: LISA M. HELLE, PE
DRAWN BY: EDIT
CHECKED BY: SGB
SUBMITTED BY: THOMAS E. BURKE, PE
SIZE: ANSI D
FILE NAME: U:\MEDIA\CONTSTR\Gallery_MP\STD\

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

95 & 1/2 HIGGINS ROAD, SUITE C30
ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EXISTING CONDITIONS AND REMOVAL PLAN
MARSHALL PLACE
STATION 80+00 to 90+00

SHEET ID
C-104
SHEET 10 OF 53

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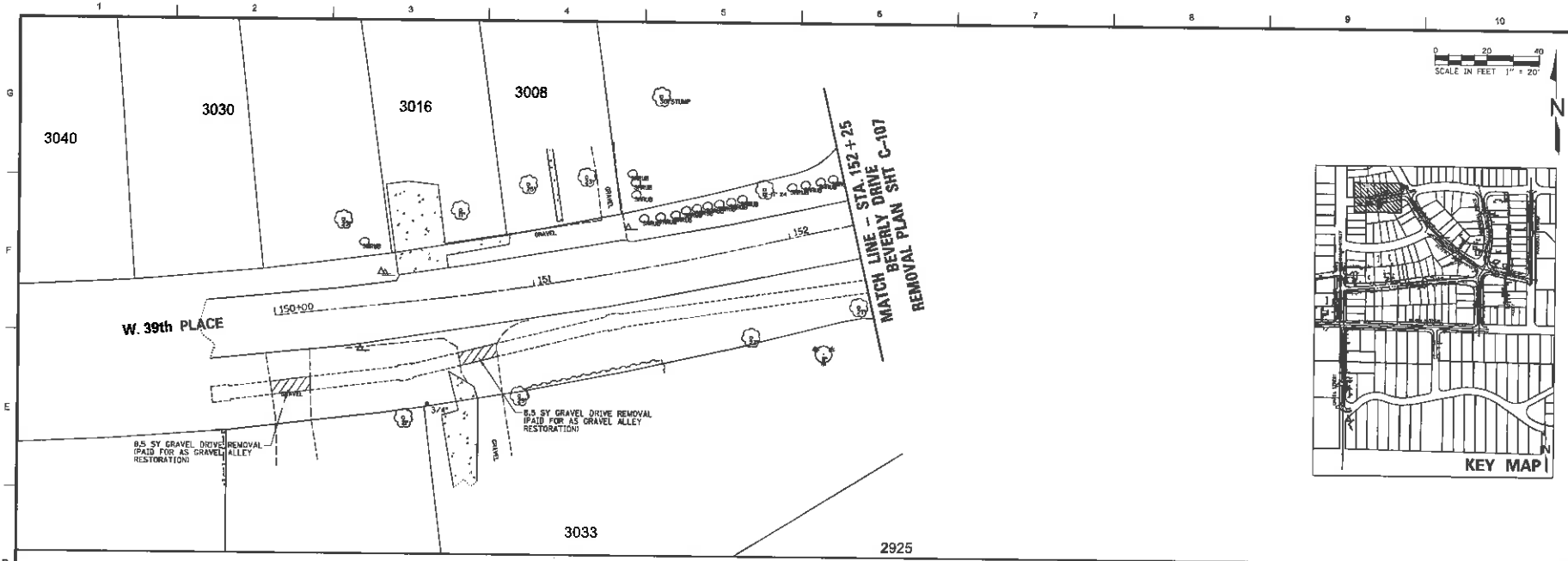


US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEEM, FEIL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS TUBBERGE, PE
SIZE: ANSI D
FILE NAME: [illegible]
ISSUED DATE: JUNE 2016
SOLICITATION NO.: W912DQ-XX-XXXX
CONTRACT NO.: W912DQ-XX-X-XXXX
PROJECT CODE: XXXXXXXX

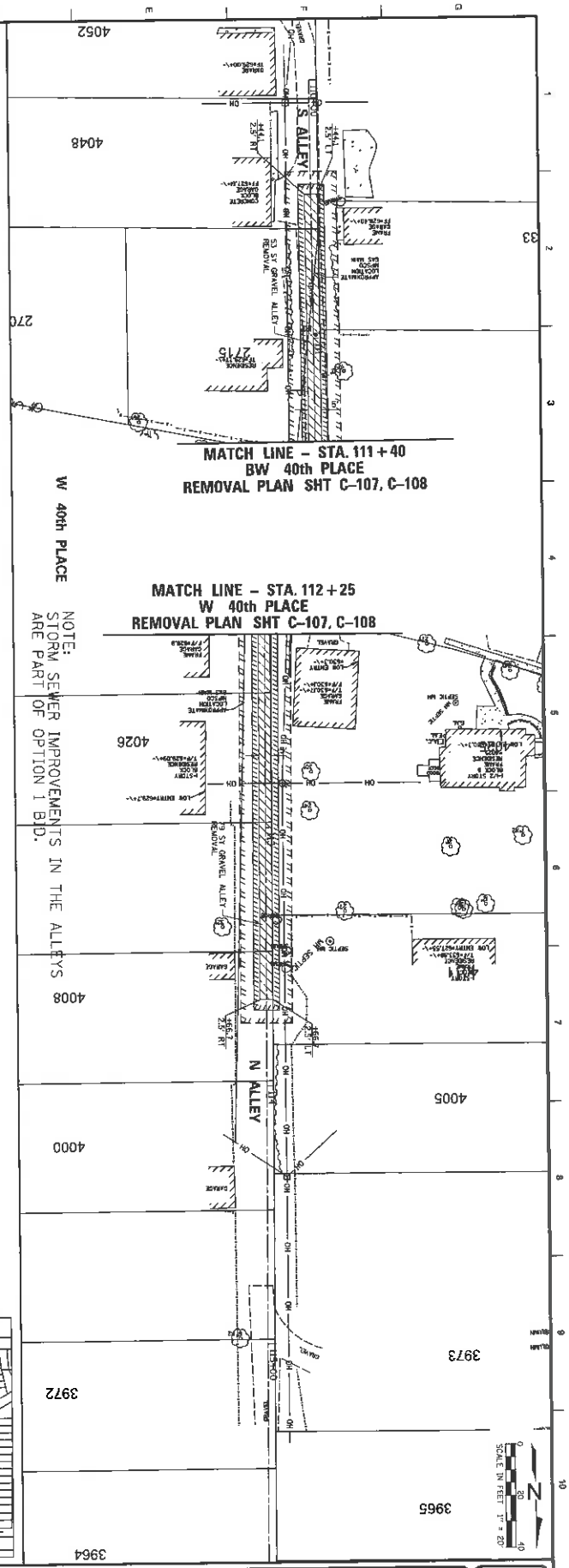
CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

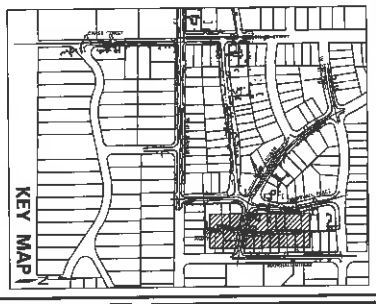
[illegible] PLAINES ROAD, SUITE 600
[illegible] ART, ILLINOIS 60018

EXISTING CONDITIONS AND REMOVAL PLAN
W. 39th PLACE
STATION 150+00 to 153+00

SHEET ID:
C-105

100%





CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EXISTING CONDITIONS AND REMOVAL PLAN
W 40th PLACE ALLEYS
STATION 110+00 to 115+50

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

5575 W. HIGGINS ROAD, SUITE 400
ROSEMONT, ILLINOIS 60018

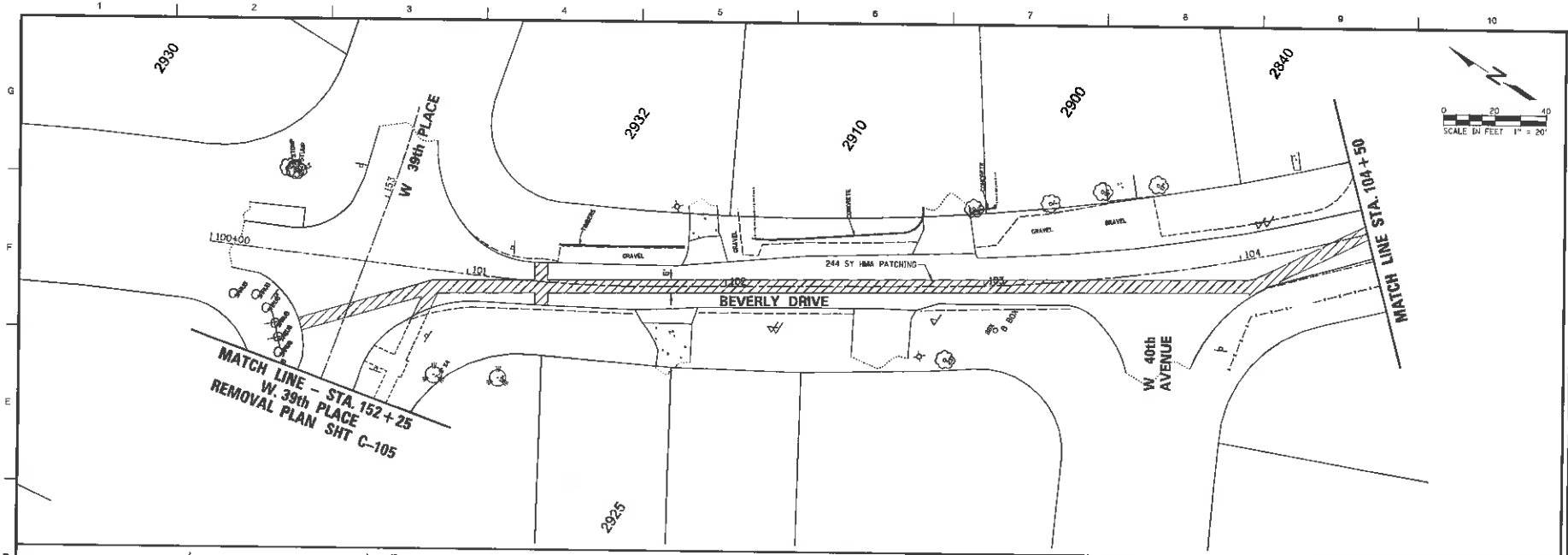
DESIGNED BY: LEE M. FRILL, PE	ISSUE DATE: JUNE 2016
DRAWN BY: EEP	SOLICITATION NO.: W912P6-XX-XXXXX
CHECKED BY: JGS	CONTRACT NO.: W912P6-XX-X-XXXX
SUBMITTED BY: THOMAS T. BURKE, PE	PROJECT CODE: 412OPX01
SIZE: ANSI D	FILE NAME: N:\INDIANA\160137\CH\dwgs_160137\ow\C-106.dwg

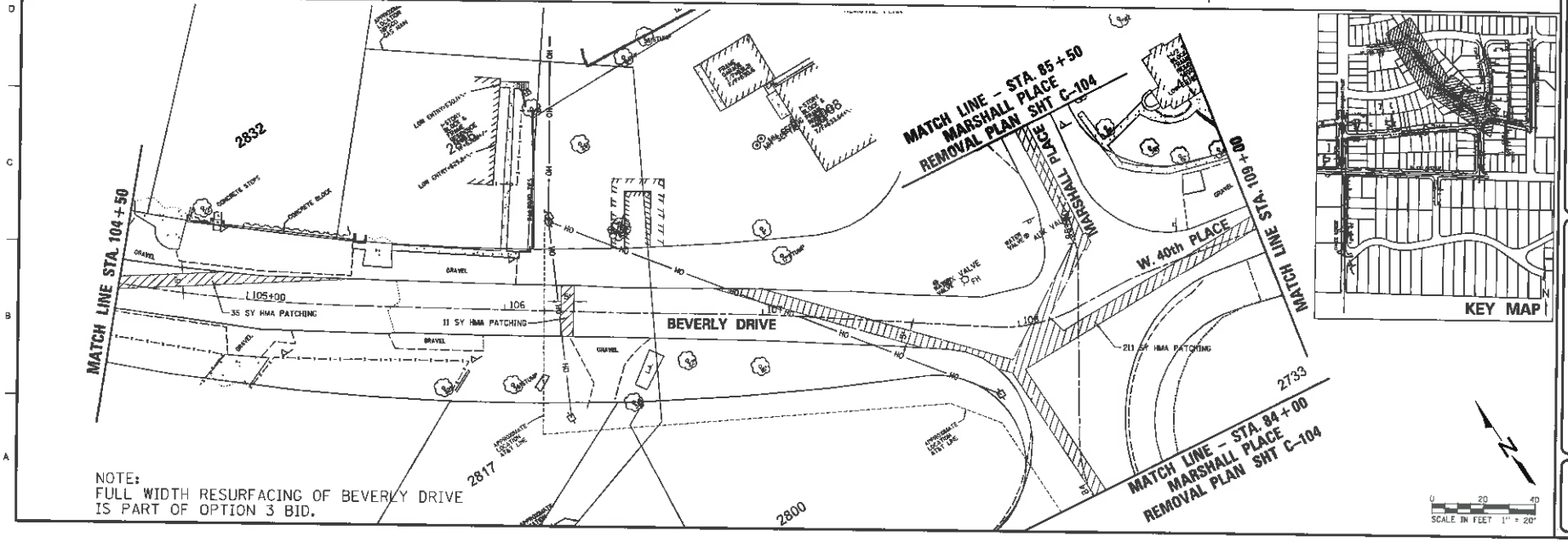
REVISIONS		
	DESCRIPTION	DATE

US Army Corps of Engineers®

SHEET ID
C-106
SHEET 8 OF 53

100%





NOTE:
FULL WIDTH RESURFACING OF BEVERLY DRIVE
IS PART OF OPTION 3 BID.

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FELL, PE
DRAWN BY:
CHECKED BY: JGS
SUBMITTED BY: THOMAS E. DUPRE, PE
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912PN-XX-X-XXXX
CONTRACT NO.: W912PN-XX-X-XXXX
PROJECT CODE:
PROJECT TITLE:
SIZE: ANSI D
FILE NAME: 100YRAVA_C-107.dgn

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

SCIC W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

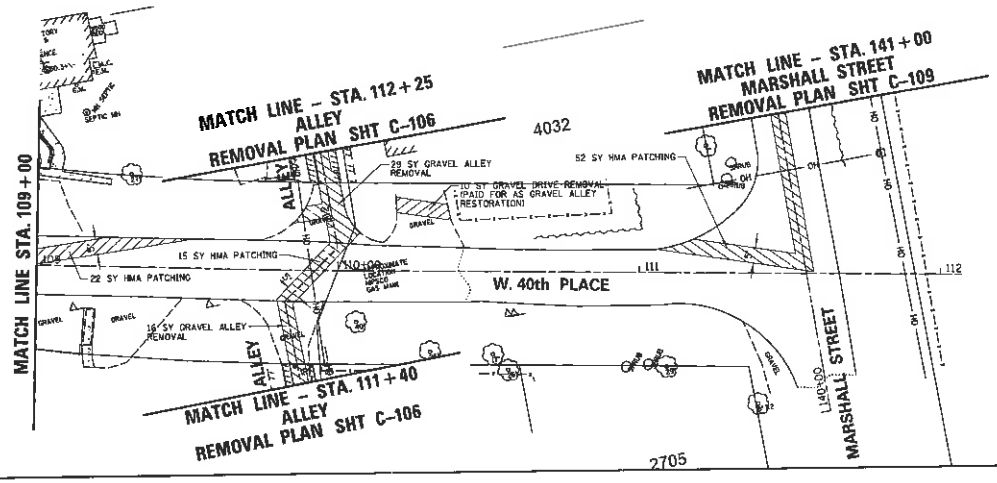
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

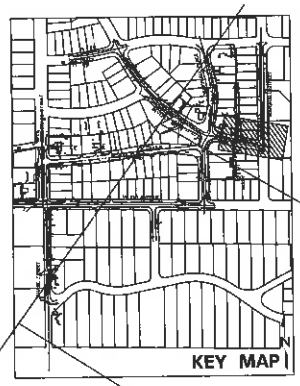
EXISTING CONDITIONS AND REMOVAL PLAN
BEVERLY DRIVE
STATION 100+00 to 109+00

SHEET ID
C-107
SHEET 13 OF 53

100%

NOTE:
FULL WIDTH RESURFACING OF W 40th PLACE
IS PART OF OPTION 3 BID.





SCALE IN FEET 1" = 20'

U.S. Army Corps of Engineers®

DATE	DESCRIPTION

DESIGNED BY: LEE M. FELL, PE
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SUBMITTED BY: [illegible]
DATE: [illegible]
DESIGN DATE: JUNE 2016
SOLICITATION NO.: W912DQ-16-B-0002
CONTRACT NO.: W912DQ-16-C-0000XX
PROJECT CODE: 34GPX1%
FILE NAME: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

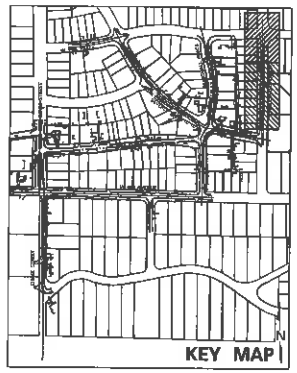
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

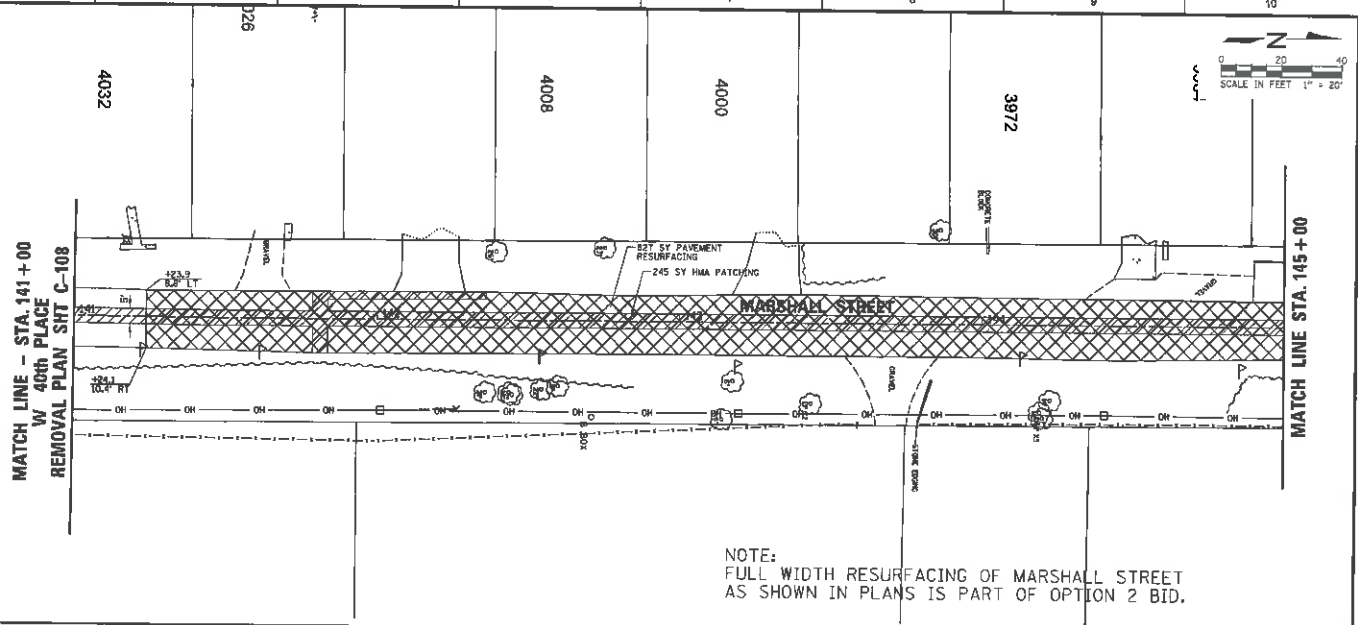
CONSTRUCTION PLANS
4 1/4 A.V. ENUE DI[illegible] PROJECT
QUINCY, [illegible]

EXISTING CONDITIONS AND REMOVAL PLAN
NORTH PLATE
STATION 109+00 to 112+00

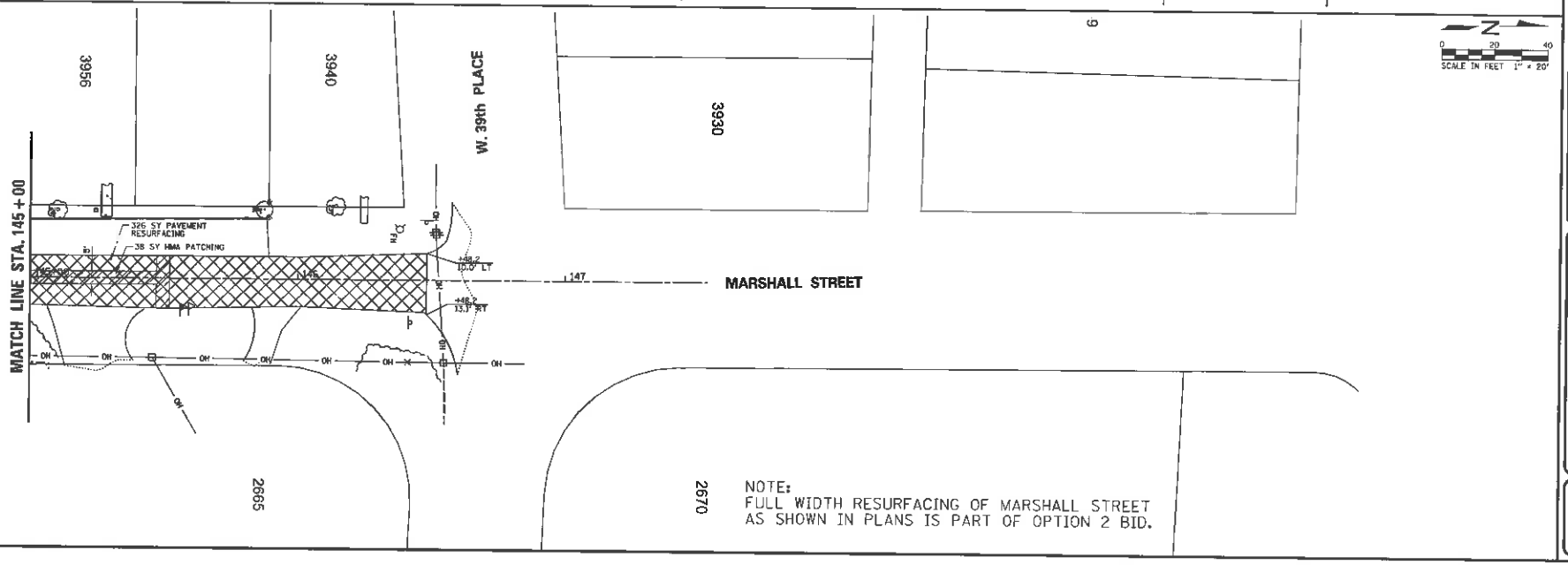
SHEET ID
C-108
SHEET 14 OF 53

100%





NOTE:
FULL WIDTH RESURFACING OF MARSHALL STREET
AS SHOWN IN PLANS IS PART OF OPTION 2 BID.



NOTE:
FULL WIDTH RESURFACING OF MARSHALL STREET
AS SHOWN IN PLANS IS PART OF OPTION 2 BID.

US Army Corps of Engineers

DATE	DESCRIPTION

DESIGNED BY: LEE N. FELL, PE
DRAWN BY: EDT
CHECKED BY:
SUBMITTED BY: THOMAS T. PAPPAS, PE
SIZE: ANSI D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DQ-XX-B-XXXX
CONTRACT NO.: W912PN-XX-X-XXXX
PROJECT CODE:
FILE NAME: N:\CHI\Chicago\00131\Cad\Sheet 109.dwg

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

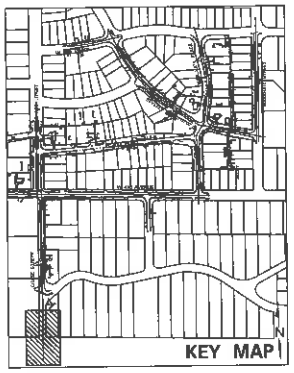
9275 W. HIGGINS ROAD, SUITE 001
ROSEMONT, ILLINOIS 60018

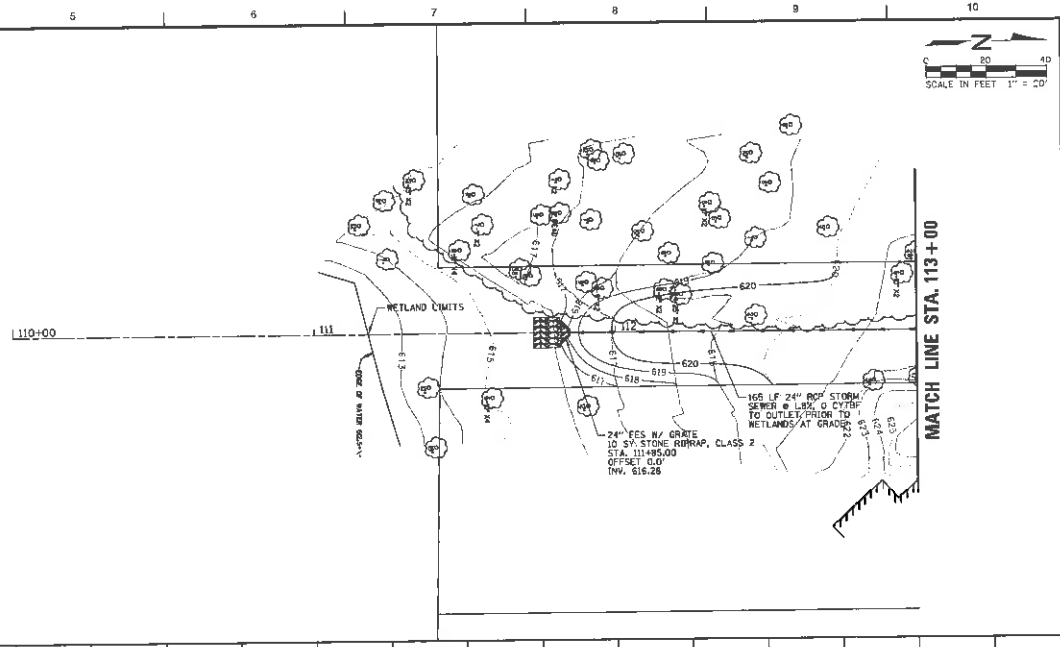
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

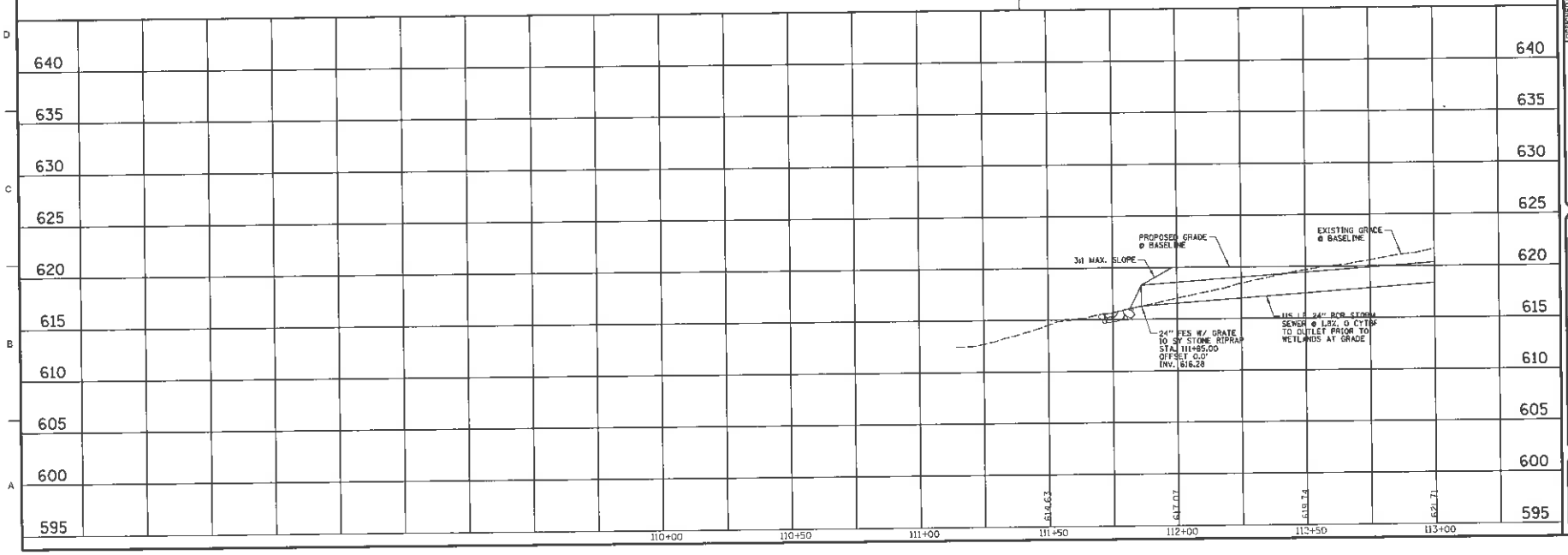
EXISTING CONDITIONS AND REMOVAL PLAN
MARSHALL PLACE
STATION 140+00 to 147+00

SHEET ID
C-109
SHEET 15 OF 53

100%







US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LES, LT, FSLT, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
SCALE: AS NOTED
FILE NAME: 1993T00-C110-Outlet_1993T00.dgn
SCALE DATE: JUNE 2013
SOLICITATION NO.: W912P8-XX-XXXX
CONTRACT NO.: W912P8-XX-X-XXXX
WORK UNIT CODE: XXXXXX

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

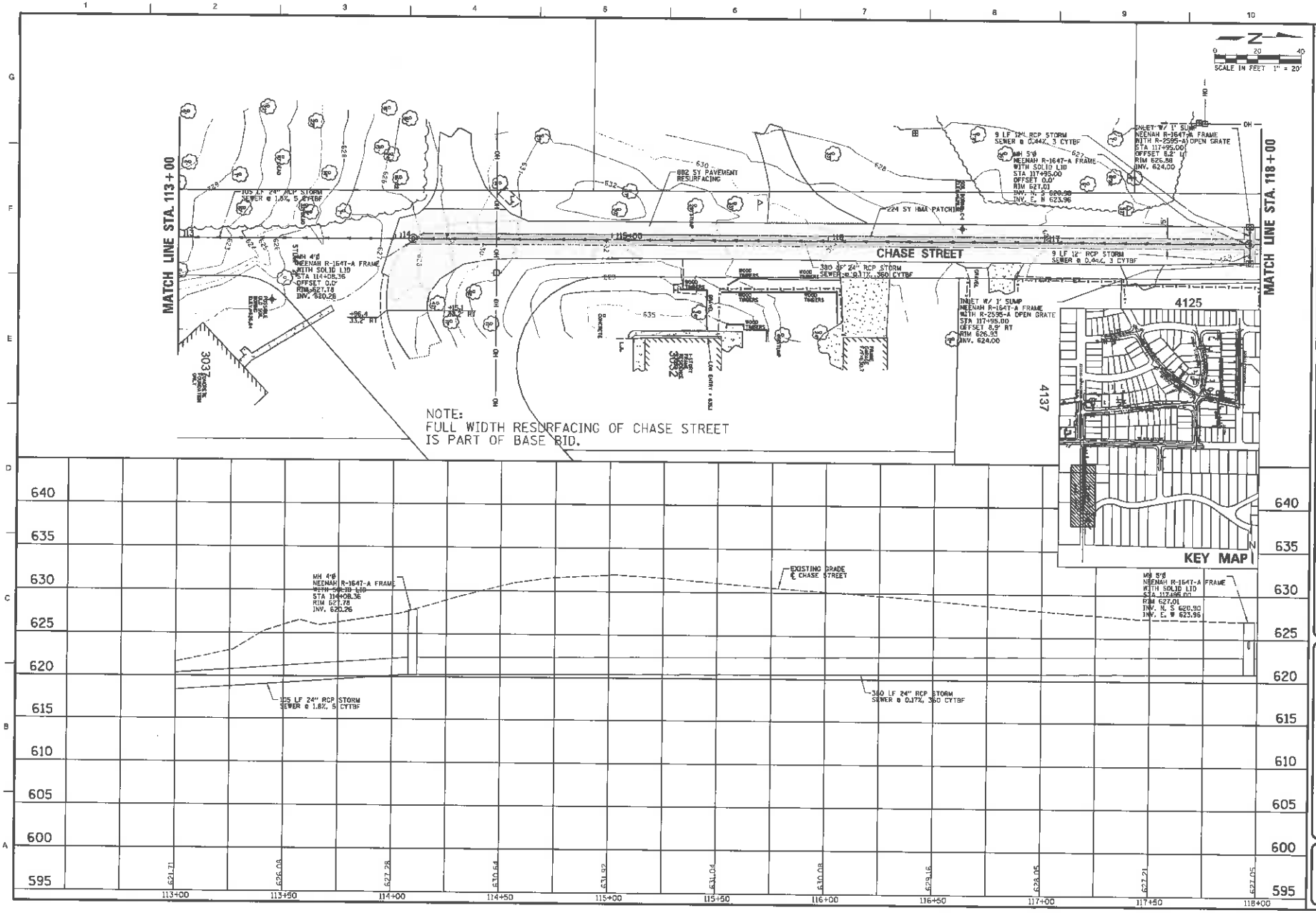
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE SEWER PROJECT
GARY, INDIANA

PLAN AND PROFILE
CHASE STREET
STATION 110+00 to 113+00

SHEET ID
C-110
SHEET 16 OF 53

100%



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FELL, PE
DRAWN BY: CHRIS
CHECKED BY: JIM
SUBMITTED BY: THOMAS E. BURKE, PE
SIZE: ANSI D
FILE NAME: 14CHASEAVE-SDP-PLAN-Sheet 111.DGN
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DQ-16-B-XXXX
CONTRACT NO.: W912DQ-XX-C-XXXX
PROJECT NO.: 336XDP-XXX

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

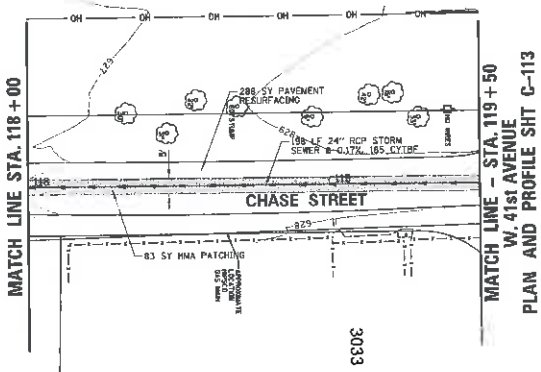
2175 W. HIGGINS ROAD, SUITE 800
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

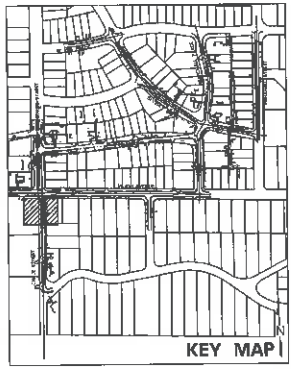
PLAN AND PROFILE
CHASE STREET
STATION 113+00 to 118+00

SHEET ID
C-111
SHEET 17 OF 53

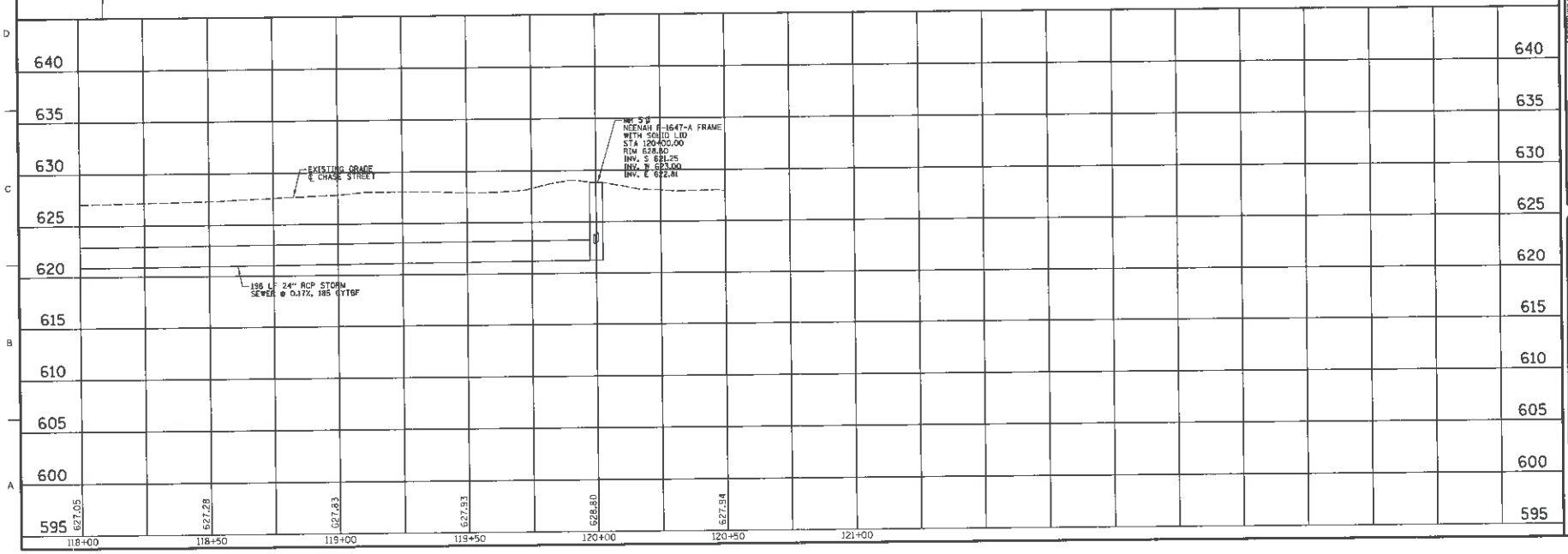
100%



NOTE:
FULL WIDTH RESURFACING OF CHASE STREET
IS PART OF BASE BID.



SCALE IN FEET 1" = 20'



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. PEEL, PE
DRAWN BY: TT
CHECKED BY: KJB
SUBMITTED BY: THOMAS T. BURGE, PE
ISSUE DATE: JUNE 2018
SOLICITATION NO.: W912DR-XX-X-XXXX
CONTRACT NO.: W912DR-XX-C-XXXX
PROJECT CODE: 1XXXXXXX
FILE NAME: U:\CHI\Chicago\Civil\Dwg\...
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

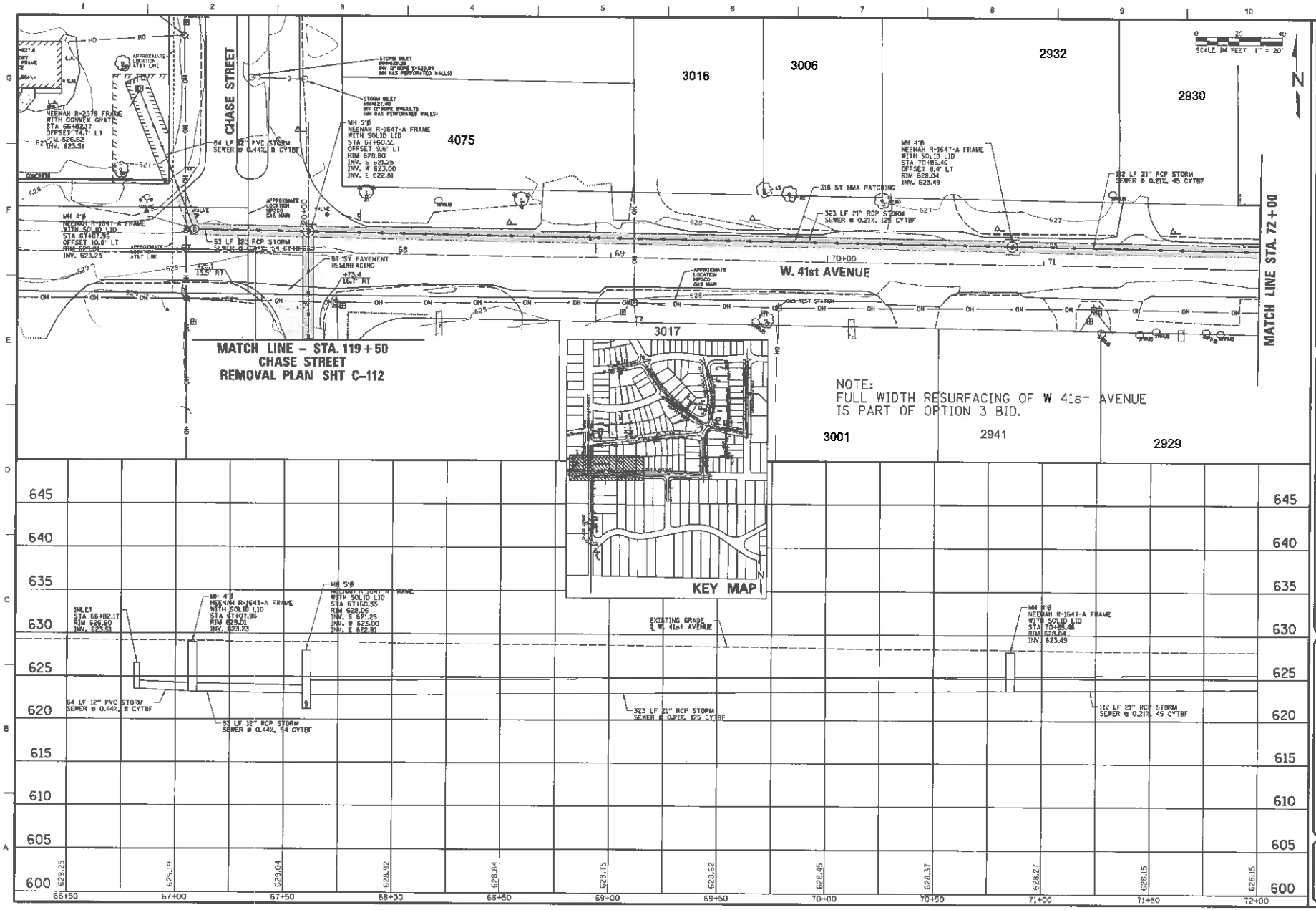
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE STREET PROJECT
GARY, INDIANA

PLAN AND PROFILE
CHASE STREET
STATION 118+00 to 120+00

SHEET ID
C-112
SHEET 18 OF 53

100%



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912P8-16-B-0008
CONTRACT NO.: W912P8-16-C-0008
PROJECT CODE: 68E
PROJECT NO.: 407327
FILE NAME: 407327-C-Sheet 113.dwg

DESIGNED BY: LEE M. PELL PE
DRAWN BY: STAFF
CHECKED BY: JSS
SUBMITTED BY: THOMAS E. BURKE, PE
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

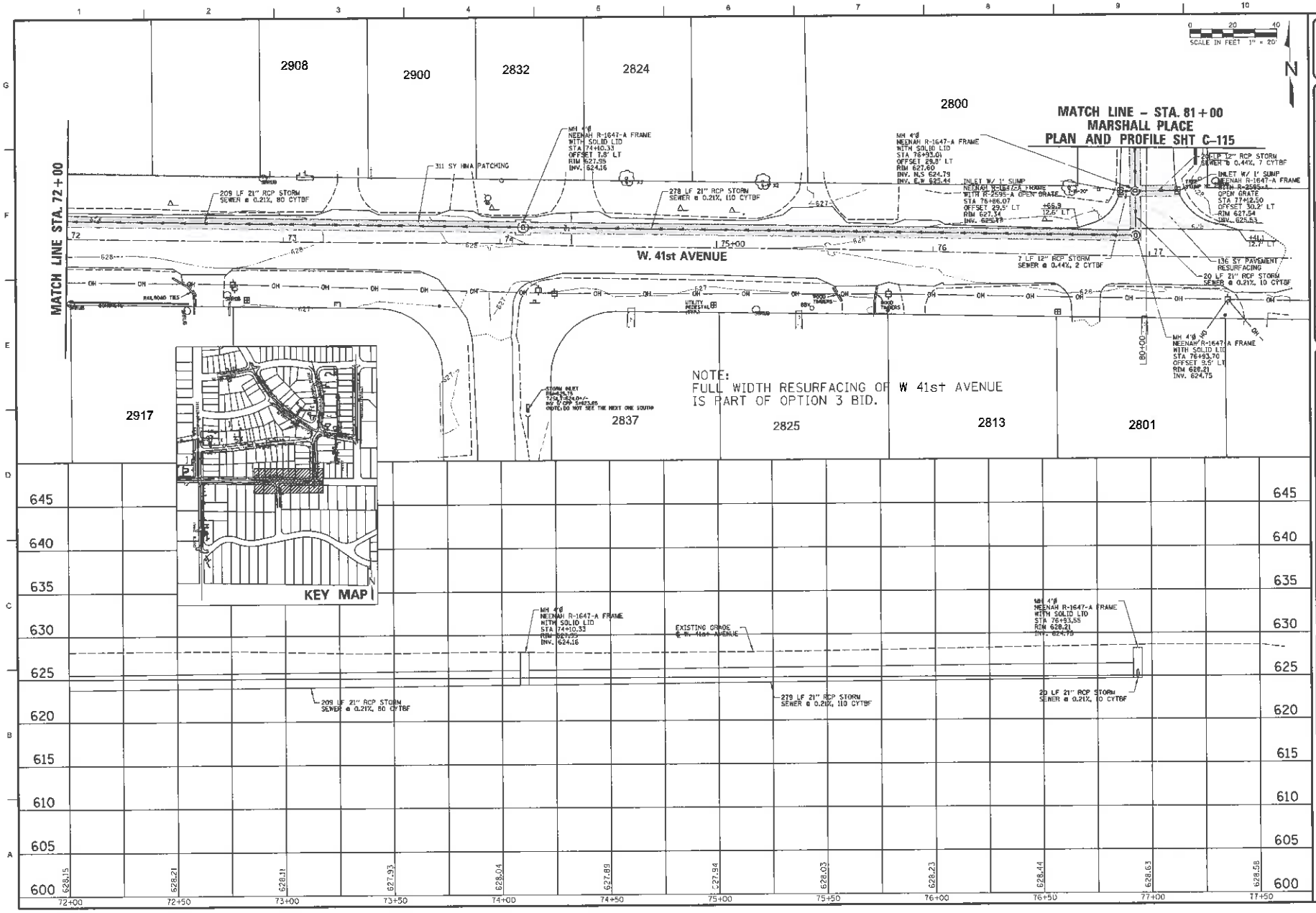
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

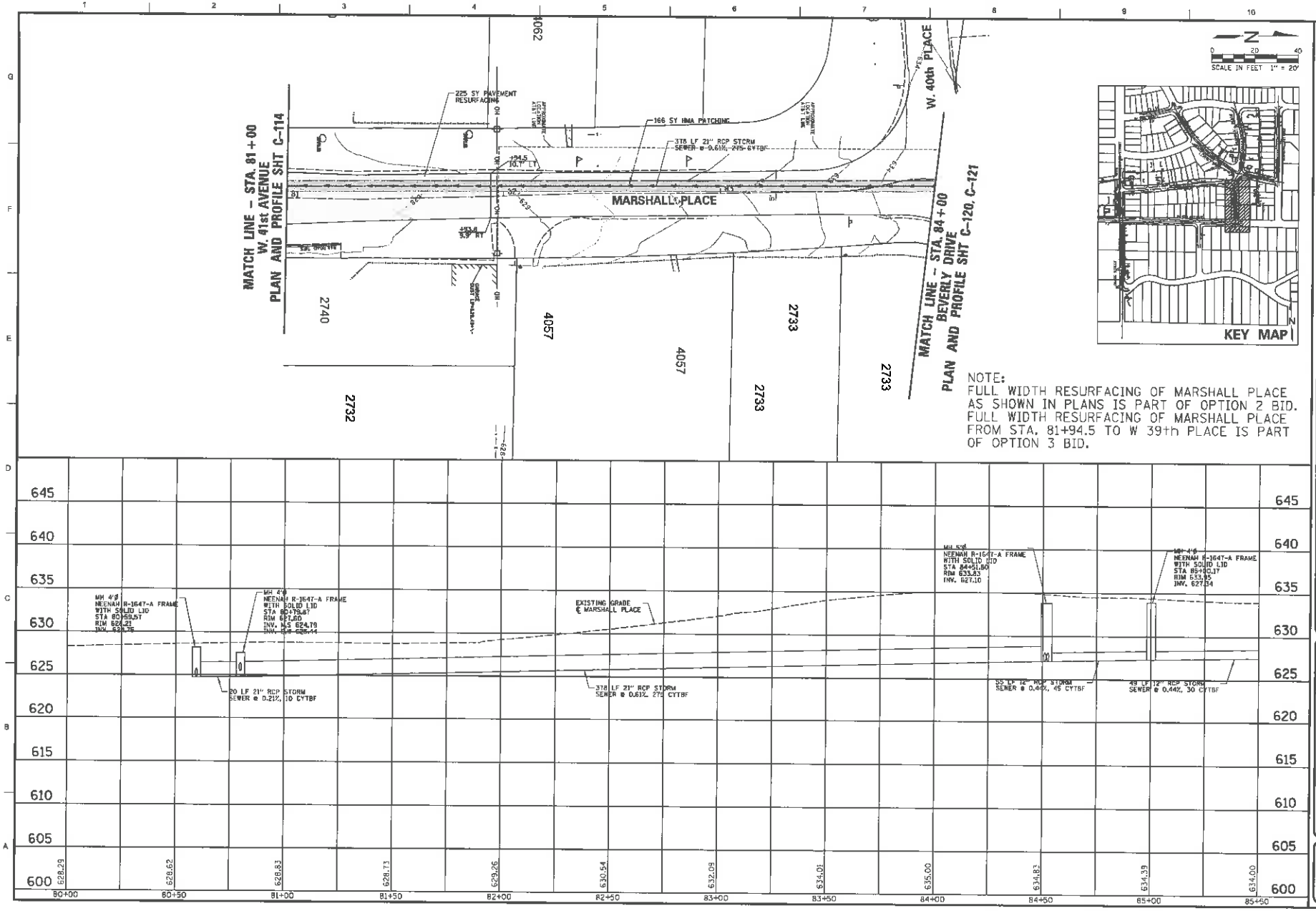
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

PLAN AND PROFILE
W 41st AVENUE
STATION 67+00 to 72+00

SHEET ID
C-113
SHEET 70 OF 53

100%


MATCH LINE – STA. 81+00
MARSHALL PLACE
PLAN AND PROFILE SHT C-115
MATCH LINE STA. 72+00
W. 41st AVENUE
2908
2900
2832
2824
2800
2917
2837
2825
2813
2801
NOTE:
FULL WIDTH RESURFACING OF W 41st AVENUE
IS PART OF OPTION 3 BID.
KEY MAP
SCALE IN FEET 1" = 20'
US Army Corps of Engineers
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
CONSTRUCTIONS PLANS
41st AVENUE STORM SEWER PROJECT
GARY, INDIANA
PLAN AND PROFILE
W 41st AVENUE
STATION 72+00 to 77+00
SHEET ID
C-114
SHEET 20 OF 53
100%



US Army Corps of Engineers

DATE	DESCRIPTION

DESIGNED BY: LEE N. HALL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS T. BURKE, PE
SIZE: ANSI D
FILE NAME: 50C0P3116
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912PN-XX-X-XXXX
CONTRACT NO.: W912PN-XX-C-XXXX
HQUSACE/OPLA CODES: 50C0P3116

U.S. ARMY CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS

9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

PLAN AND PROFILE
MARSHALL PLACE
STATION 80+00 to 85+00

SHEET ID
C-115
SHEET 21 OF 53

100%

NOTE:
FULL WIDTH RESURFACING OF MARSHALL PLACE FROM STA. 81+94.5 TO W 39th PLACE IS PART OF OPTION 3 BID.

MATCH LINE - STA. 85+50
BEVERLY DRIVE
PLAN AND PROFILE SHT C-120, C-121

MARSHALL PLACE

W. 39th PLACE

195 LF 12" RCP STORM SEWER @ 0.44%, 128 CYTBF

235 SY HMA PATCHING

214 LF 12" RCP STORM SEWER @ 0.44%, 145 CYTBF

MH 4'Ø
NEENAH R-1647-A FRAME
WITH SOLID LID
STA 87+46.31
OFFSET 7.8' RT
RIM 634.99
INV. 628.41

INLET W/ 1' SUMP
NEENAH R-1647-A FRAME
WITH R-2595-A OPEN GRATE
STA 89+61.35
OFFSET 4.5' LT
RIM 632.21
INV. 629.53

MH 4'Ø
NEENAH R-1647-A FRAME
WITH SOLID LID
STA 89+59.92
OFFSET 3.2' RT
RIM 632.18
INV. NW, SE 629.35
INV. W, E 629.50

7 LF 12" RCP STORM SEWER @ 0.44%, 2 CYTBF

INLET W/ 1' SUMP
NEENAH R-1647-A FRAME
WITH R-2595-A OPEN GRATE
STA 89+58.77
OFFSET 5.4' RT
RIM 631.88
INV. 625.53

EXISTING GRADE @ MARSHALL PLACE

SCALE IN FEET 1" = 20'

KEY MAP

Station	Invert Elevation
85+50	634.00
86+00	634.21
86+50	635.14
87+00	635.18
87+50	635.19
88+00	635.02
88+50	634.31
89+00	633.14
89+50	632.53
90+00	632.81
90+50	633.77

US Army Corps of Engineers

DATE	DESCRIPTION

ISSUE DATE: JUNE 2010
CONTRACT NO.: W912DR-XX-XXXXX
CONTRACT NO.: W912DR-XX-XXXXX
PROJECT CODE: 92A2PX1N
FILE NAME: 1401370ca.dgn 1401370ca.dgn

DESIGNED BY: LT E.M. FEL, PE
DRAWN BY: EDT
CHECKED BY: EDT
SUBMITTED BY: Eric Fel
REVISED: 10/01/10

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

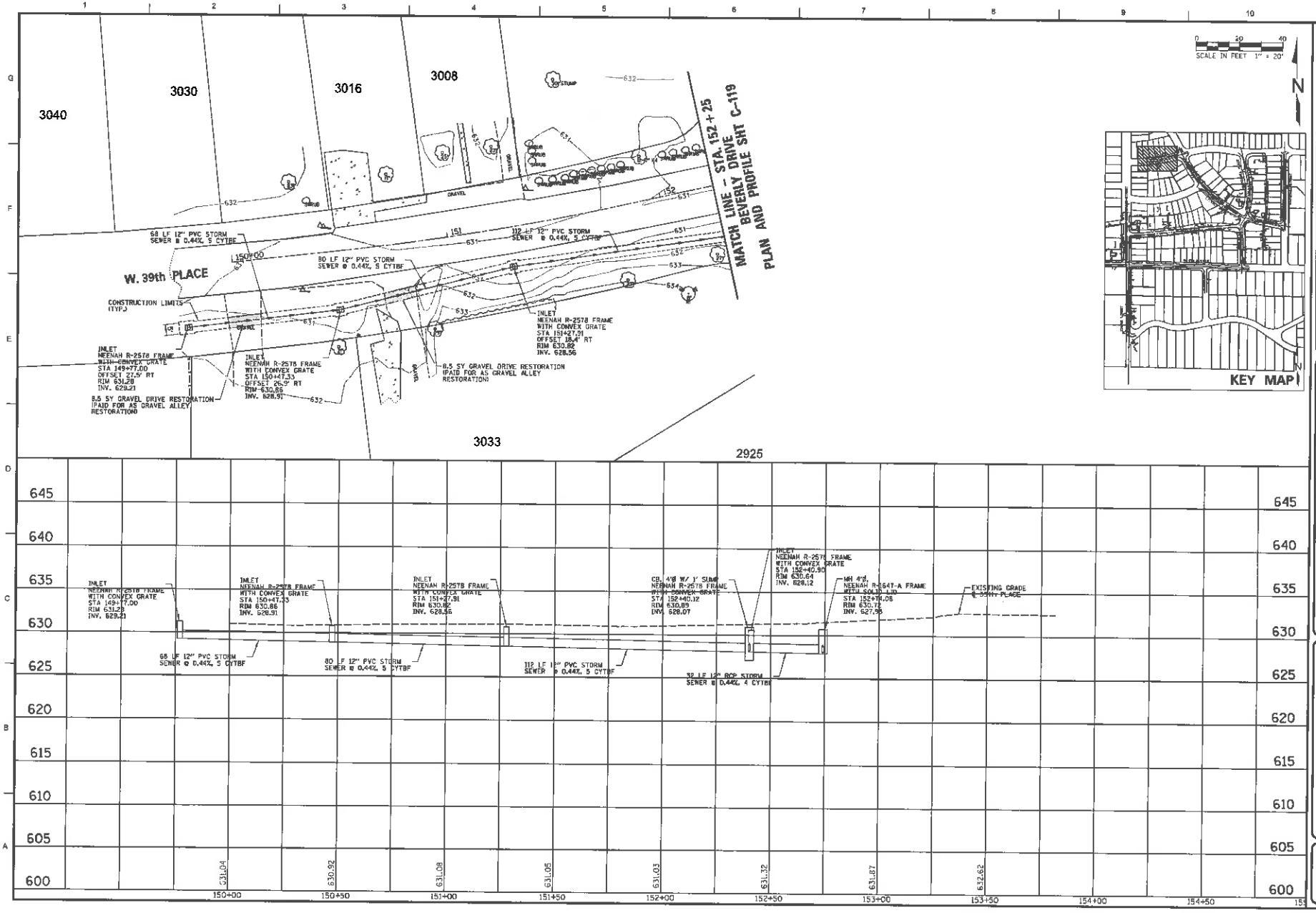
5975 W. HIGGINS ROAD, SUITE 500
ROSEMONT, ILLINOIS 60018

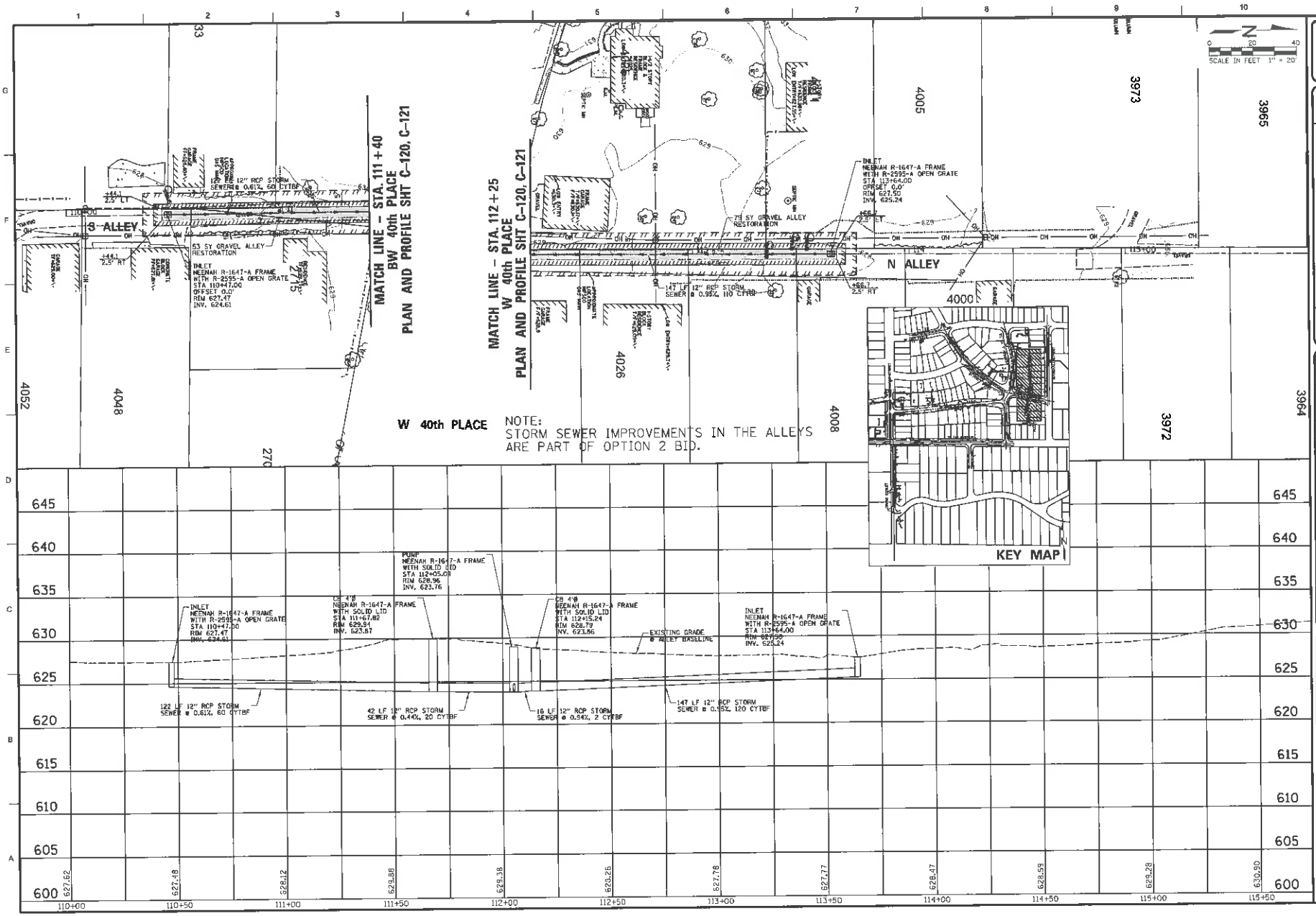
CONSTRUCTION PLAN
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

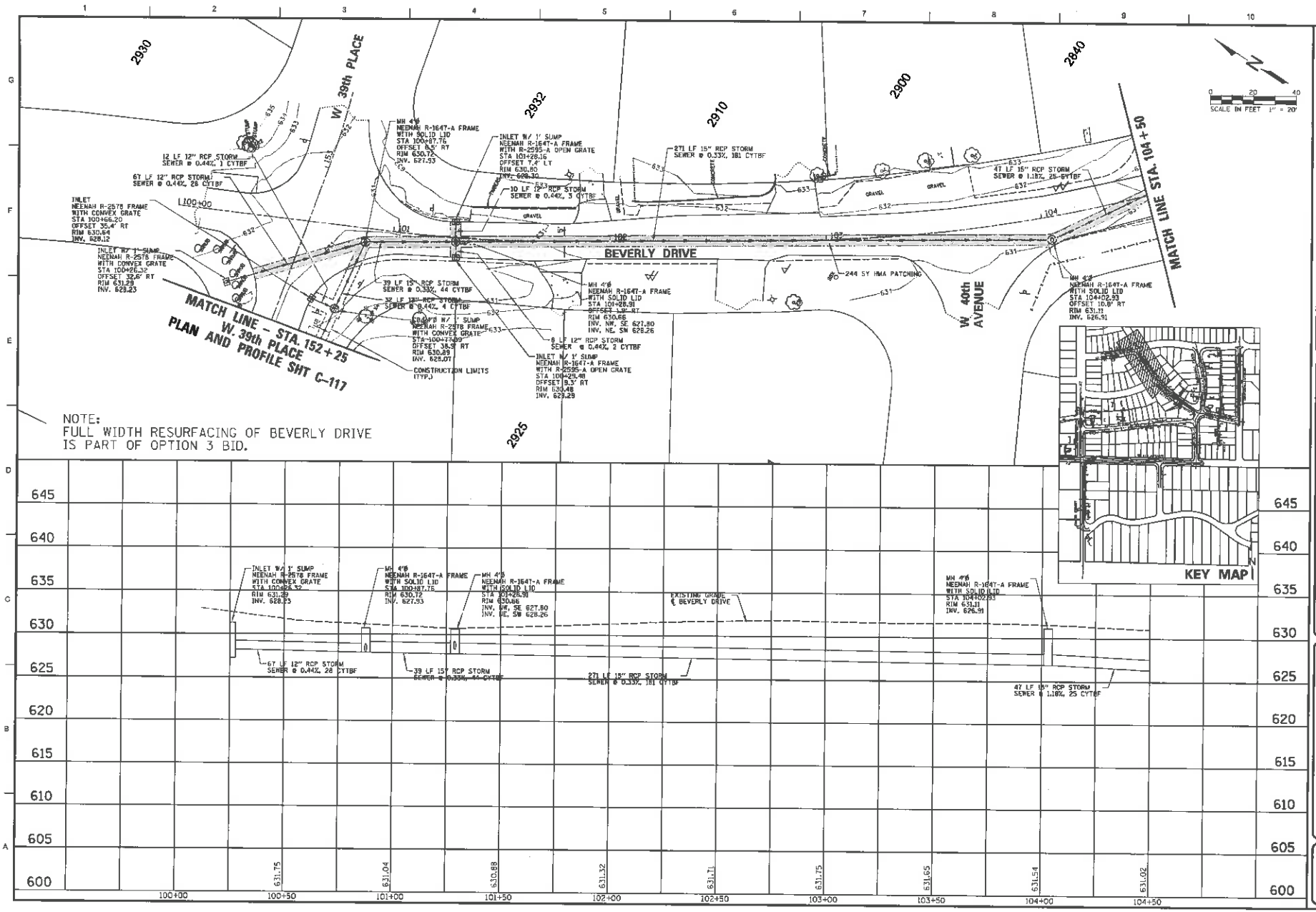
PLAN AND PROFILE
MARSHALL PLACE
STATION 85+50 to 90+00

SHEET ID
C-116
SHEET 22 OF 53

100%


3040
3030
3016
3008
3033
2925
W. 39th PLACE
MATCH LINE – STA. 152+25
BEVERLY DRIVE
PLAN AND PROFILE SHT C-119
68 LF 12" PVC STORM SEWER @ 0.44%, S CYTBF
80 LF 12" PVC STORM SEWER @ 0.44%, S CYTBF
112 LF 12" PVC STORM SEWER @ 0.44%, S CYTBF
32 LF 12" RCP STORM SEWER @ 0.44%, 4 CYTBF
CONSTRUCTION LIMITS (TYP.)
INLET NEENAH R-2578 FRAME WITH CONVEX GRATE STA 149+77.00 OFFSET 27.5' RT RIM 631.28 INV. 629.21
INLET NEENAH R-2578 FRAME WITH CONVEX GRATE STA 150+47.33 OFFSET 26.9' RT RIM 630.86 INV. 628.91
INLET NEENAH R-2578 FRAME WITH CONVEX GRATE STA 151+27.91 OFFSET 18.4' RT RIM 630.82 INV. 628.56
8.5 SY GRAVEL DRIVE RESTORATION (PAID FOR AS GRAVEL ALLEY RESTORATION)
CB, 4'Ø W/ 1' SUMP NEENAH R-2578 FRAME WITH CONVEX GRATE STA 152+40.12 RIM 630.89 INV. 628.07
INLET NEENAH R-2578 FRAME WITH CONVEX GRATE STA 152+40.90 RIM 630.64 INV. 628.12
MH 4'Ø, NEENAH R-1647-A FRAME WITH SOLID LID STA 152+76.08 RIM 630.72 INV. 627.98
EXISTING GRADE @ 39th PLACE
631.04
630.92
631.08
631.05
631.03
631.32
631.87
632.62
150+00
150+50
151+00
151+50
152+00
152+50
153+00
153+50
154+00
154+50
SCALE IN FEET 1" = 20'
KEY MAP
US Army Corps of Engineers®
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912P8-XX-X-XXXX
CONTRACT NO.: W912P8-XX-C-XXXX
PROJECT CODE: PMCC2115
DESIGNED BY: LEE A. FRILL, PE
DRAWN BY: ED
CHECKED BY: ISG
QUALITY REVIEW BY: THOMAS T. BURKE, PE
SIZE: ANSI D
FILE NAME: C:\Users\...\Desktop\...\Plan and Profile 150-153.dgn
U.S. ARMY CORPS OF ENGINEERS CHICAGO DISTRICT CHICAGO, ILLINOIS
5975 W. HIGGINS ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018
CONSTRUCTION PLANS 41st AVENUE DRAINAGE PROJECT GARY, INDIANA
PLAN AND PROFILE W 39th PLACE STATION 150+00 to 153+00
SHEET ID C-117
SHEET 23 OF 53
100%


S ALLEY
N ALLEY
W 40th PLACE
MATCH LINE – STA. 111+40
BW 40th PLACE
PLAN AND PROFILE SHT C-120, C-121
MATCH LINE – STA. 112+25
W 40th PLACE
PLAN AND PROFILE SHT C-120, C-121
NOTE:
STORM SEWER IMPROVEMENTS IN THE ALLEYS
ARE PART OF OPTION 2 BID.
KEY MAP
SCALE IN FEET 1" = 20'
US Army Corps of Engineers
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA
PLAN AND PROFILE
W 40th PLACE ALLEYS
STATION 110+00 to 115+50
SHEET ID
C-118
SHEET 24 OF 53
100%



US Army Corps of Engineers®

DATE

DESIGN FIRM

ISSUE DATE: JUNE 2018

DESIGNED BY: LEE M. HILL, PE

DRAWN BY: SHAWN KOCH

CHECKED BY: THOMAS T. BURKE, PE

SUBMITTED BY: THOMAS T. BURKE, PE

CONTRACT NO.: W912DR-XX-X-XXXX

CONTRACT NO.: W912DR-XX-C-XXXX

FILE NAME: 01-PLAN & PROFILE.DGN

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

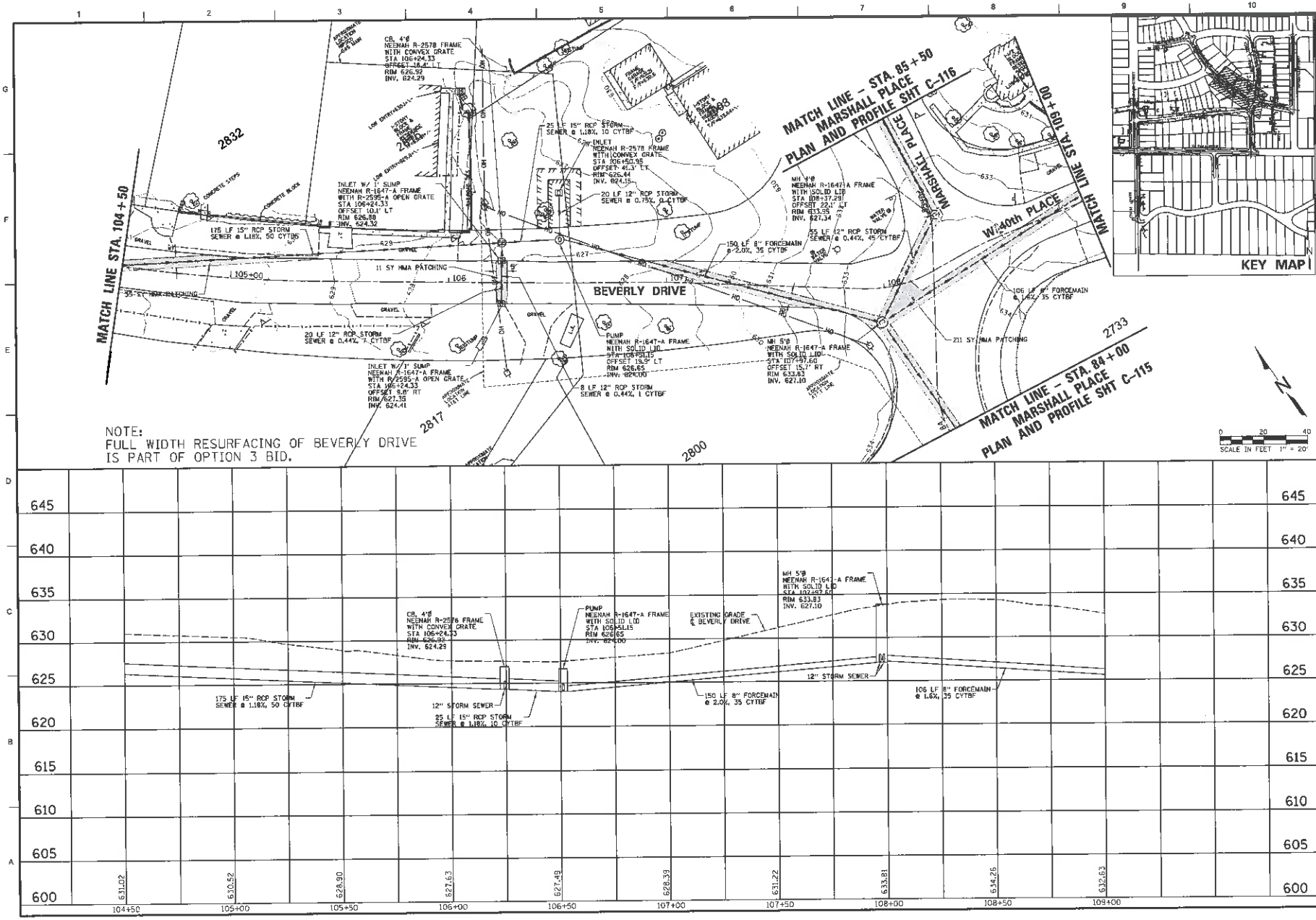
5970 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60016

CONSTRUCTION PLANS
4TH AVENUE DRAINAGE PROJECT
GARY, INDIANA

PLAN AND PROFILE
BEVERLY DRIVE
STATION 100+00 to 104+50

SHEET ID
C-119
SHEET 25 OF 53

100%



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: DEB & P.E.L. PE
DRAWN BY: EDT
CHECKED BY:
ISSUE DATE: JUNE 2017
SOLICITATION NO.: W912DK-XX-XXXXX
CONTRACT NO.: W912DK-XX-C-XXXX
PROJECT CODE:
SUBMITTED BY:
FILE NAME: N:\MENU\Beverly\C120_Beverly_Plan_Profile.dgn
CADD: MICRO STATION V8

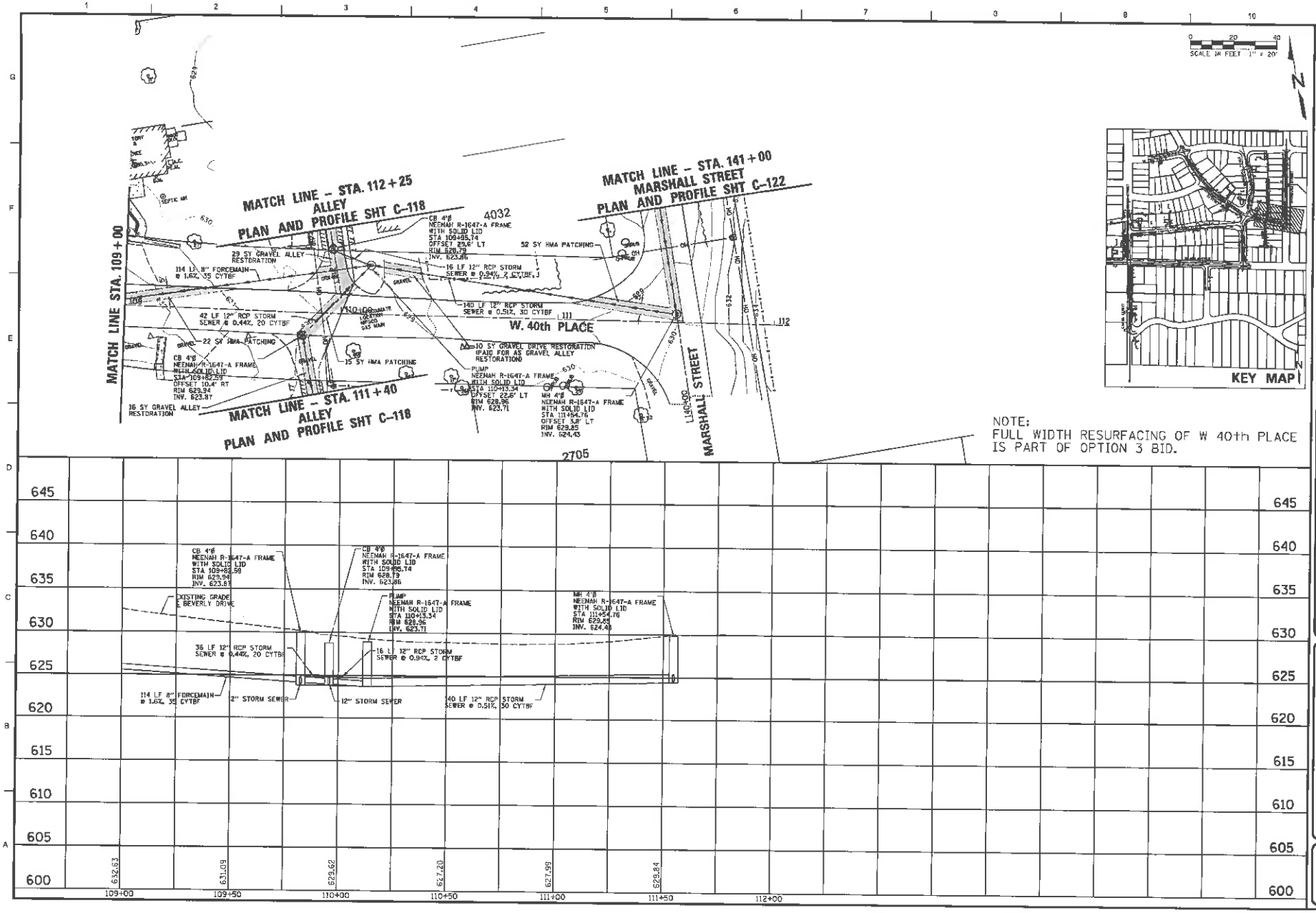
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
5975 W. HIGGINS ROAD, SUITE 1-R
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVE. GRADE SEPARATION PROJECT
GARY, INDIANA

PLAN AND PROFILE
BEVERLY DRIVE
STATION 104+50 to 108+00

SHEET ID
C-120
SHEET 26 OF 53

100%



US Army Corps of Engineers

	DATE	
	DESCRIPTION	
	MARK	

DESIGNED BY: LEE M. FELLPE
DRAWN BY:
CHECKED BY: RSB
SUBMITTED BY: THOMAS T. BURKE, PE
DATE: 2/23/10
FILE NAME: 1:\Projects\Gary\Dwg\Plan_HE-121.dwg
RESURFACING JUNE 2010
SOLICITATION NO.: W912P8-XX-X-XXXX
CONTRACT NO.: W912P8-XX-X-XXXX
PROJECT CODE:

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

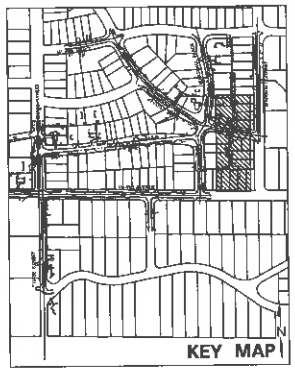
6575 W. HIGGINS ROAD, SUITE 500
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

PLAN AND PROFILE
W 40th PLACE
STATION 109+00 to 112+00

SHEET ID
C-121
SHEET 27 OF 53

100%



MATCH LINE – STA. 141+00
W/ 40th PLACE
PLAN AND PROFILE SHT C-121

MATCH LINE STA. 145+00

SCALE IN FEET 1" = 20'

4032 | 4026 | 4008 | 4000 | 3972

MARSHALL STREET

CB 4'Ø
NEENAH R-1647-A FRAME
WITH SOLID LID
STA 141+81.23
OFFSET 0.0'
RIM 627.01
INV. 625.00

125 LF 12" RCP STORM
SEWER @ 0.44%, 45 CYTBF

9 LF 12" RCP STORM
SEWER @ 0.44%, 2 CYTBF

INLET W/ 1' SUMP
NEENAH R-1647-A FRAME
WITH R-2595-A OPEN GRATE
STA 141+81.23
OFFSET 8.9' LT
RIM 626.96
INV. 625.04

52 LF 12" RCP STORM
SEWER @ 0.44%, 20 CYTBF

INLET
NEENAH R-1647-A FRAME
WITH R-2595-A OPEN GRATE
STA 142+32.95
OFFSET 9.2' LT
RIM 627.01
INV. 625.27

827 SY PAVEMENT
RESURFACING

245 SY HMA
PAVEMENT PATCHES

71 LF 12" RCP STORM
SEWER @ 0.44%, 220 CYTBF

+23.9
8.8' LT

+24.1
10.4' RT

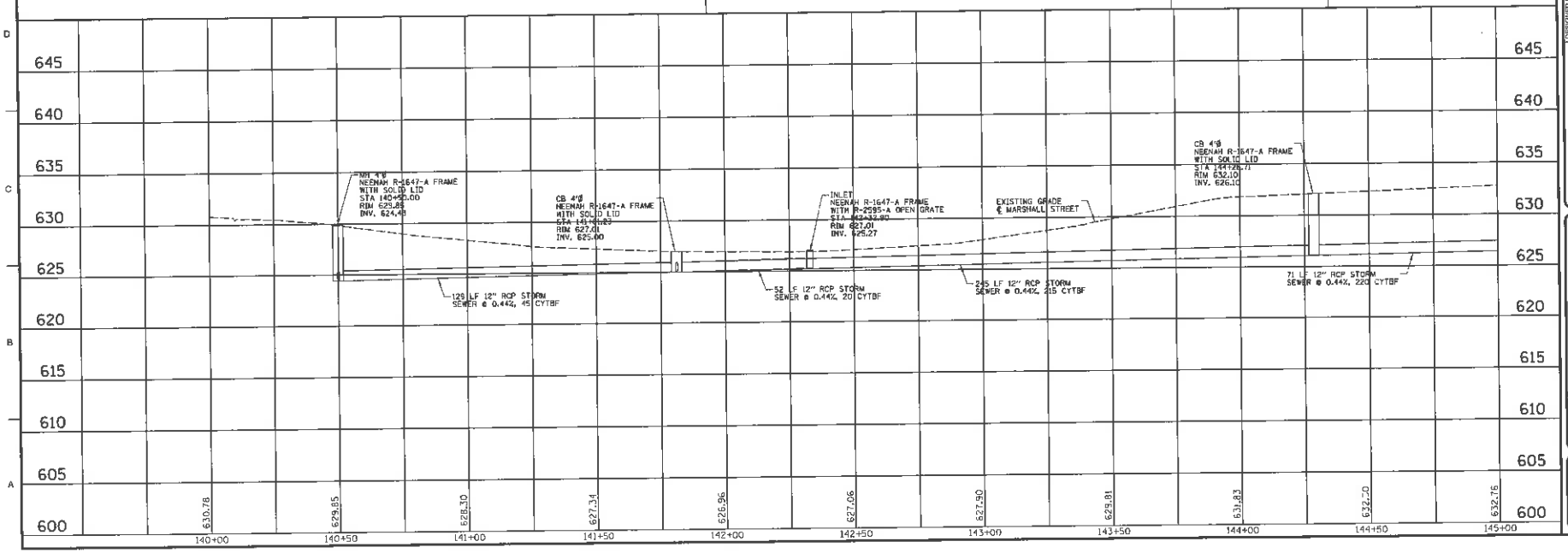
11 LF 12" RCP STORM
SEWER @ 0.44%, 3 CYTBF

245 LF 12" RCP STORM
SEWER @ 0.44%, 215 CYTBF

INLET W/ 1' SUMP
NEENAH R-1647-A FRAME
WITH R-2595-A OPEN GRATE
STA 141+81.15
OFFSET 11.4' RT
RIM 626.85
INV. 625.05

CB 4'Ø
NEENAH R-1647-A FRAME
WITH SOLID LID
STA 144+26.71
OFFSET 0.0'
RIM 632.10
INV. 626.10

NOTE:
FULL WIDTH RESURFACING OF MARSHALL STREET
AS SHOWN IN PLANS IS PART OF OPTION 2 BID.



US Army Corps of Engineers®

DATE	DESCRIPTION

DESIGNED BY: LEE M. FELL, PE
DRAWN BY: VOA
CHECKED BY: KRS
SUBMITTED BY: THOMAS F. BURKE, PE
SIZE: ANSI D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912P8-XX-B-XXXX
CONTRACT NO.: W911NA-XX-X-XXXX
WBS NUMBER: 5A0P5219
FILE NAME: N:\Indianapolis\Design\Plan Sets\Marshall Place\Marshall Place Plan Set.dwg

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

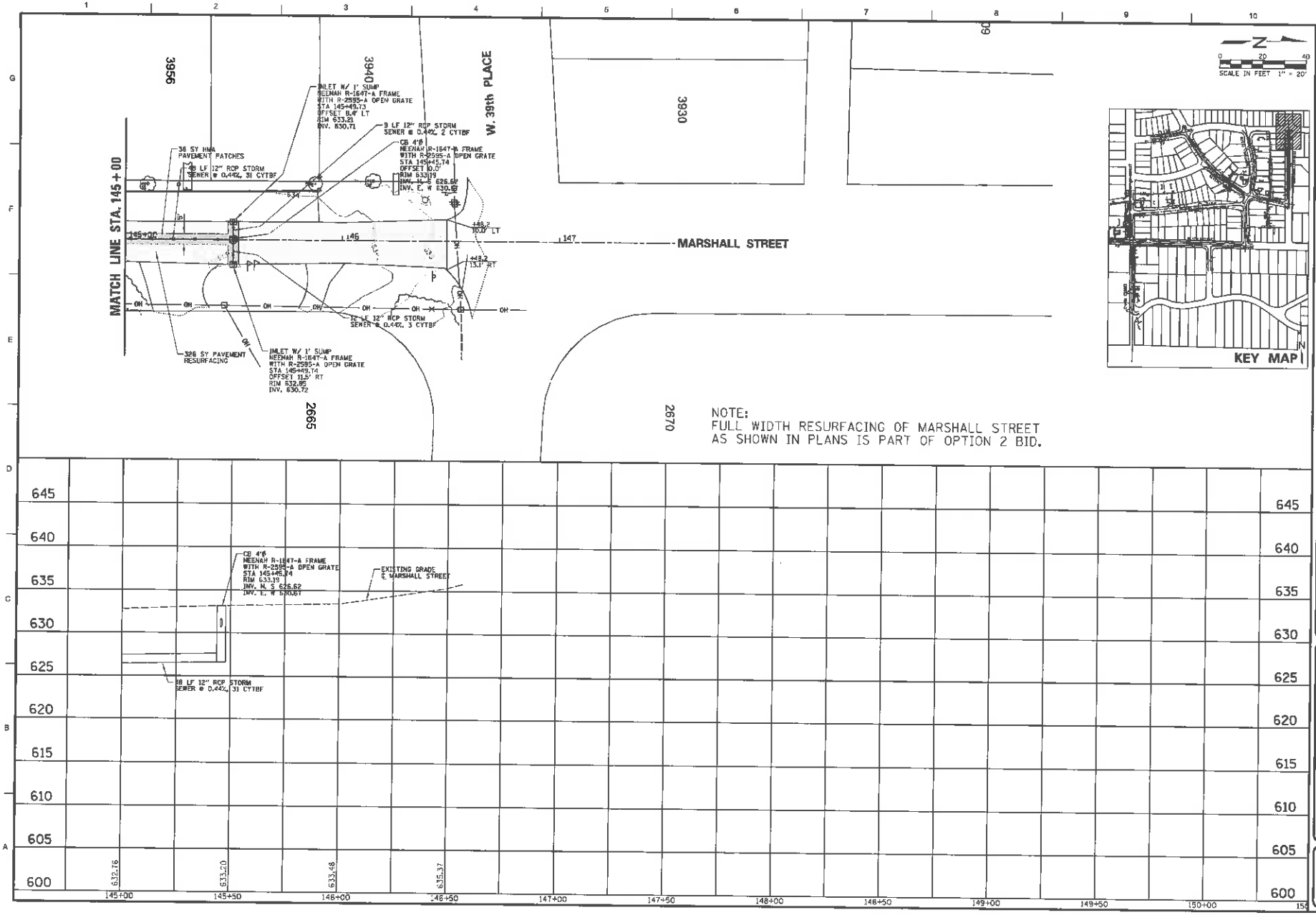
5 - 75 W. HIGGINS ROAD, SUITE 209
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE/MARSHALL PROJECT
GARY, INDIANA

PLAN AND PROFILE
MARSHALL PLACE
STATION 140+00 to 145+00

SHEET ID
C-122
SHEET 28 OF 53

100%



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FOLL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS E. BERRIS, PE
SIZE: 22x34 D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912HN-X-XXXX
CONTRACT NO.: W912HN-XX-X-XXXX
PROJECT CODE: 594JP5118
FILE NAME: N:\MARSHALL\MS\PLAN\C-123.dgn

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

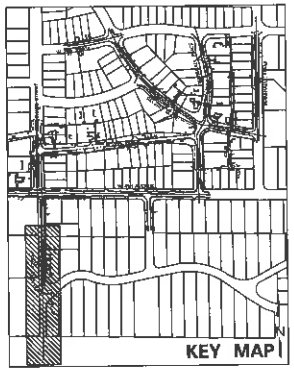
5975 W. HIGGINS ROAD, SUITE 500
INDIAN LAKE, ILLINOIS 60018

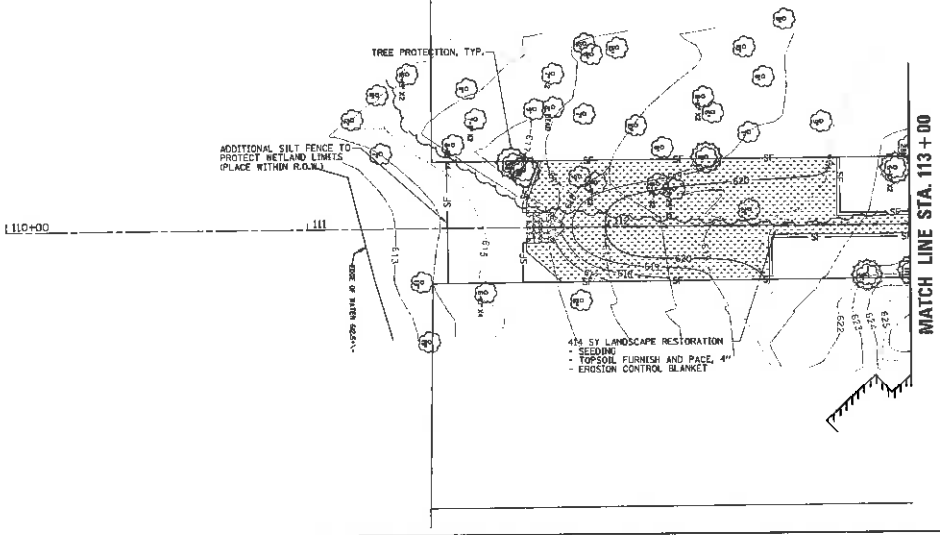
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

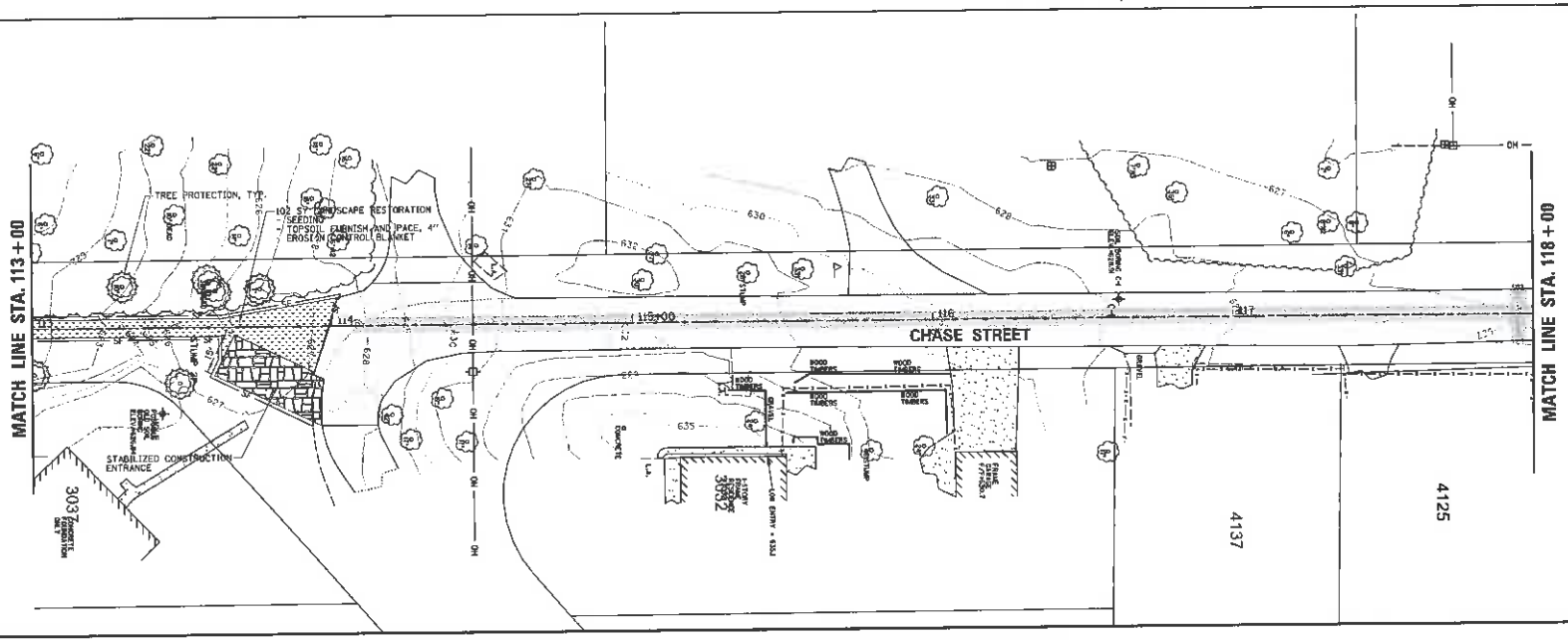
PLAN AND PROFILE
MARSHALL STREET
STATION 145+00 to 146+50

SHEET ID
C-123
SHEET 29 OF 53

100%







US Army Corps of Engineers®

DATE	DESCRIPTION

DESIGNED BY: LEE M. FEIL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: JUNE 2016
F-SOLICITATION NO.: W912HN-XX-XXXX
CONTRACT NO.: W912HN-XX-XXXX
PROJECT CODE:
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

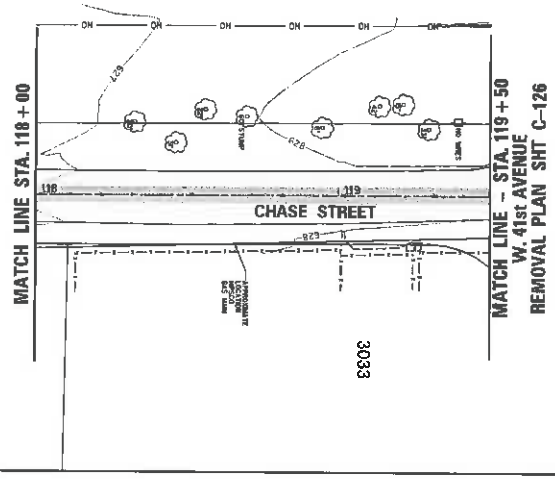
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

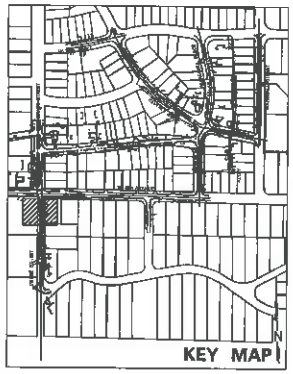
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
QUINCY, WISCONSIN

LANDSCAPING AND SESC PLAN
CHASE STREET
STATION 110+00 to 118+00

SHEET ID
C-124
SHEET 30 OF 53

100%





SCALE IN FEET 1" = 20'

US Army Corps of Engineers

DATE	DESCRIPTION

DESIGNED BY: LEE H. FELL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS E. BURGIE, PE
SCALE: AS SHOWN
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912HN-XX-XXXX
CONTRACT NO.: W912HN-XX-C-XXXX
PROJECT CODE:
FILE NAME:

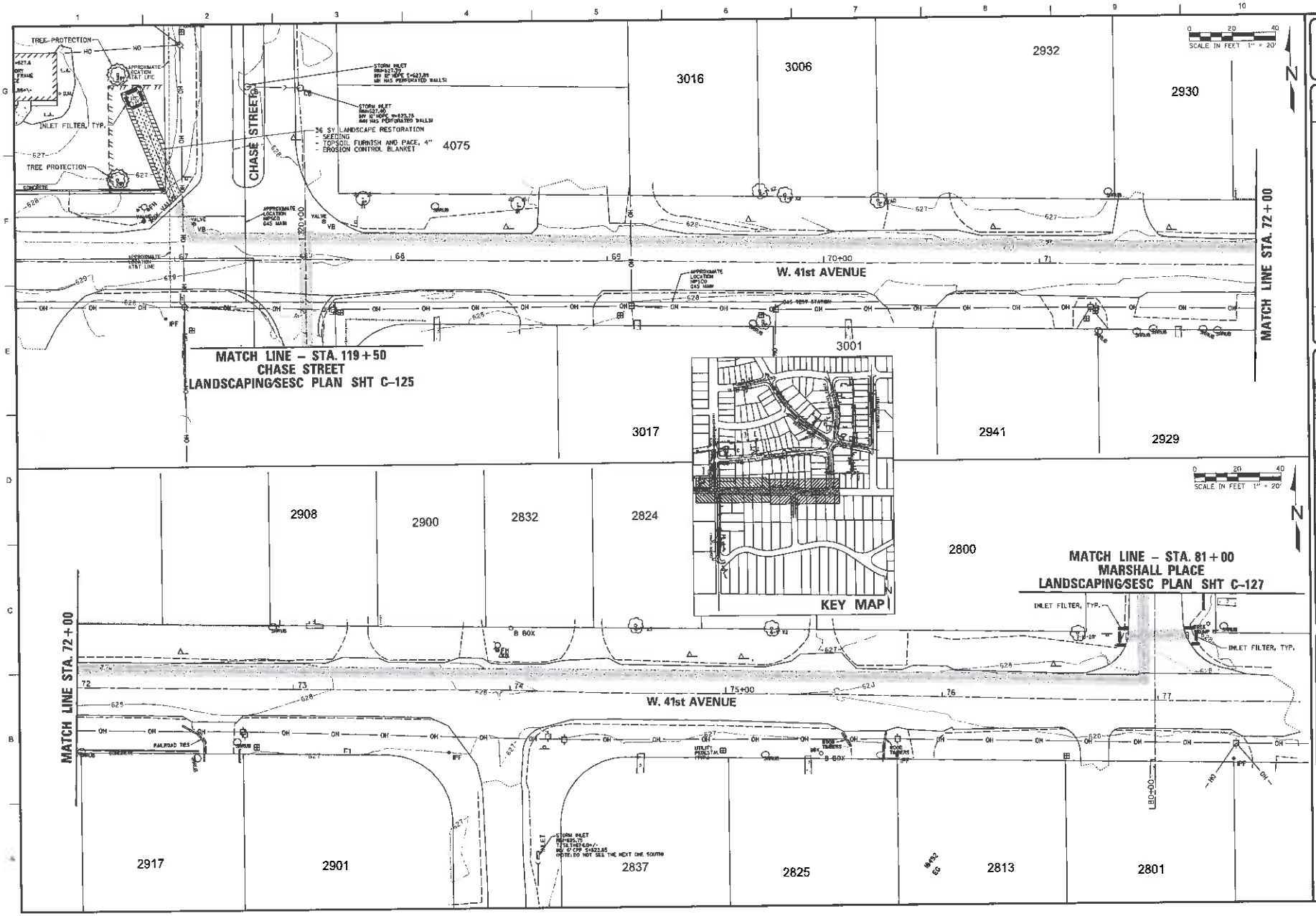
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

DISTRICT CONTACT:
Chief, Planning Section
Chief, Admin.

LANDSCAPING AND SESC PLAN
CHASE STREET
STATION 118+00 to 120+00

SHEET #2
C-125

100%



US Army Corps of Engineers

DATE	DESCRIPTION	REMARK

DESIGNED BY: LEE M. FEEL, PE
DRAWN BY: ESTEBAN
CHECKED BY: JGS
SUBMITTED BY: SUSAN T. BURKE, PE
DGN: 33615.D
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912HN-16-B-0043
CONTRACT NO.: W912HN-16-C-XXXX
PROJECT CODE: 1530PC115
FILE NAME: T:\Projects\CHI\Chicago_DRAINAGE

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

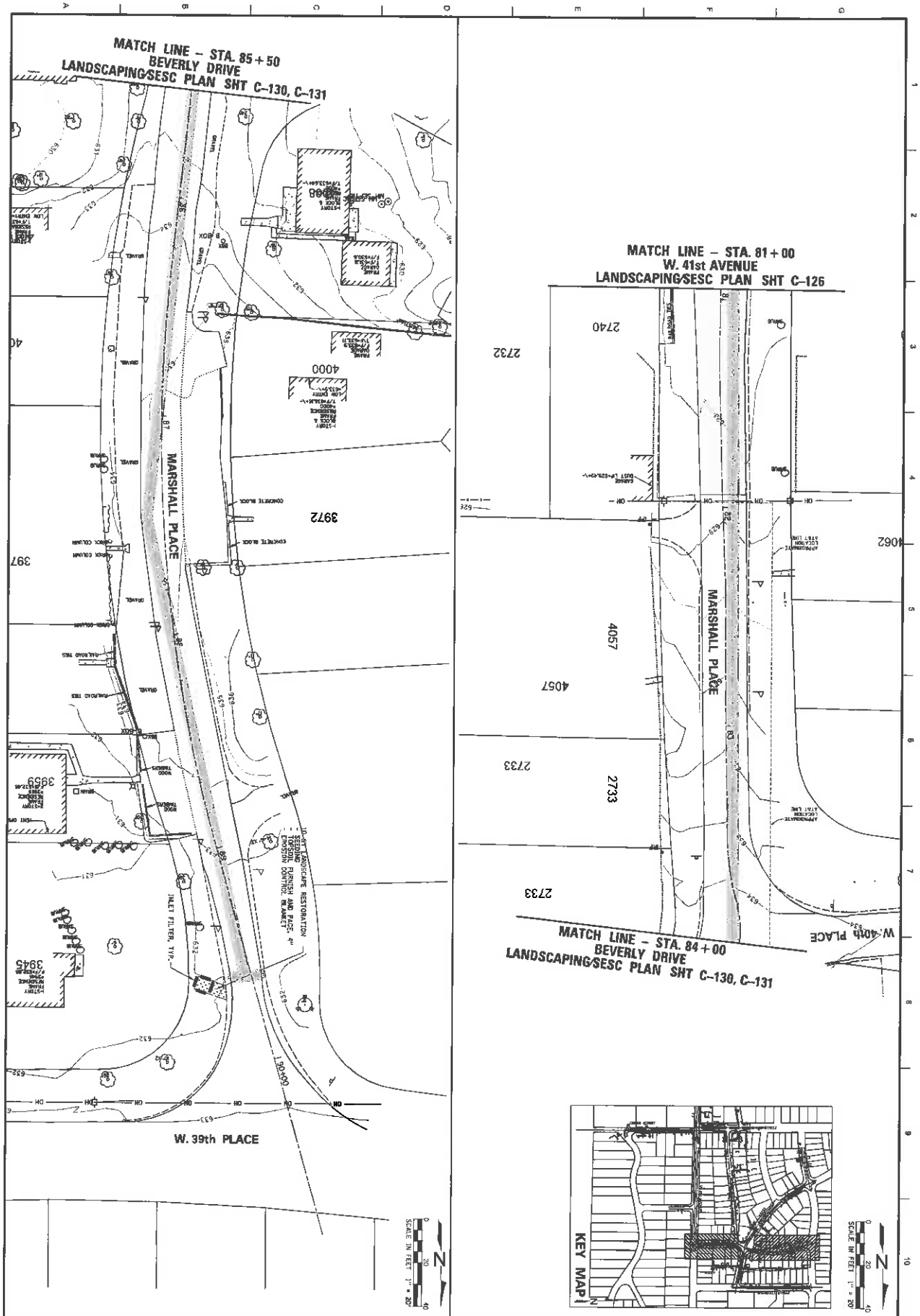
1675 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

LANDSCAPING AND SESC PLAN
W. 41st AVENUE
STATION 67+00 to 77+00

SHEET ID
C-126
SHEET 32 OF 53

100%



CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

LANDSCAPING AND SE/SC PLAN
MARSHALL PLACE
STATION 80+00 to 90+50

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

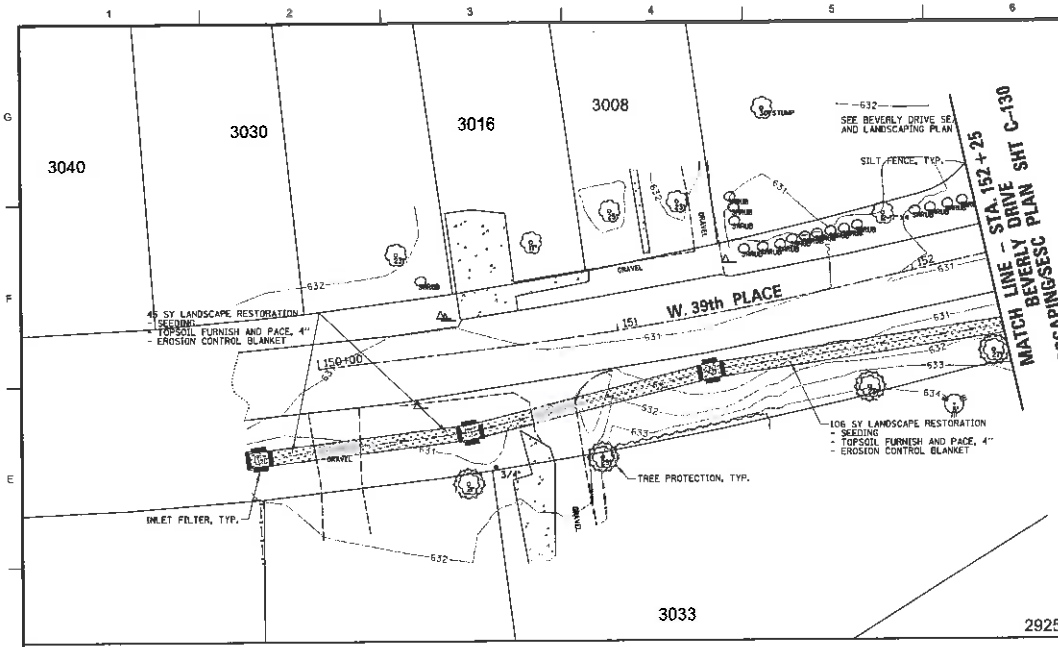
DESIGNED BY: LEE M. FELL, PE	ISSUE DATE: JUNE 2016
DRAWN BY: BDT	SOLICITATION NO.: W912PN-XX-X-XXXX
CHECKED BY: JGS	CONTRACT NO.: W912PN-XX-X-XXXX
SUBMITTED BY: THOMAS T. BURKE, PE	PROJECT CODE: XXXPXXX%
SCALE: ANSI D	FILE NAME: H:\INDIANA\41ave\127Ch\lleander_100113.dgn

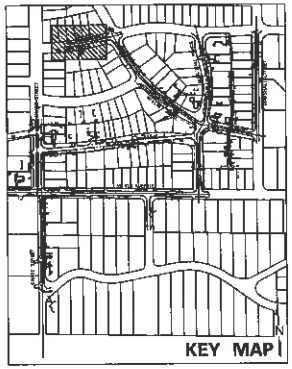
MARK	DESCRIPTION	DATE

US Army Corps of Engineers

SHEET ID
C-127
SHEET 33 OF 53

100%





SCALE IN FEET 1" = 20'

US Army Corps of Engineers

DATE	DESCRIPTION	MARK

DESIGNED BY: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SUBMITTED BY: THOMAS P. BURKE, PE
GRID: NAD83
ISSUE DATE: JUNE 2010
CONTRACT NO.: W912PK-XXXXXXXX
CONTRACT NO.: W912PK-XXXXXXXX
CONTRACT NO.: W912PK-XXXXXXXX
FILE NAME: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

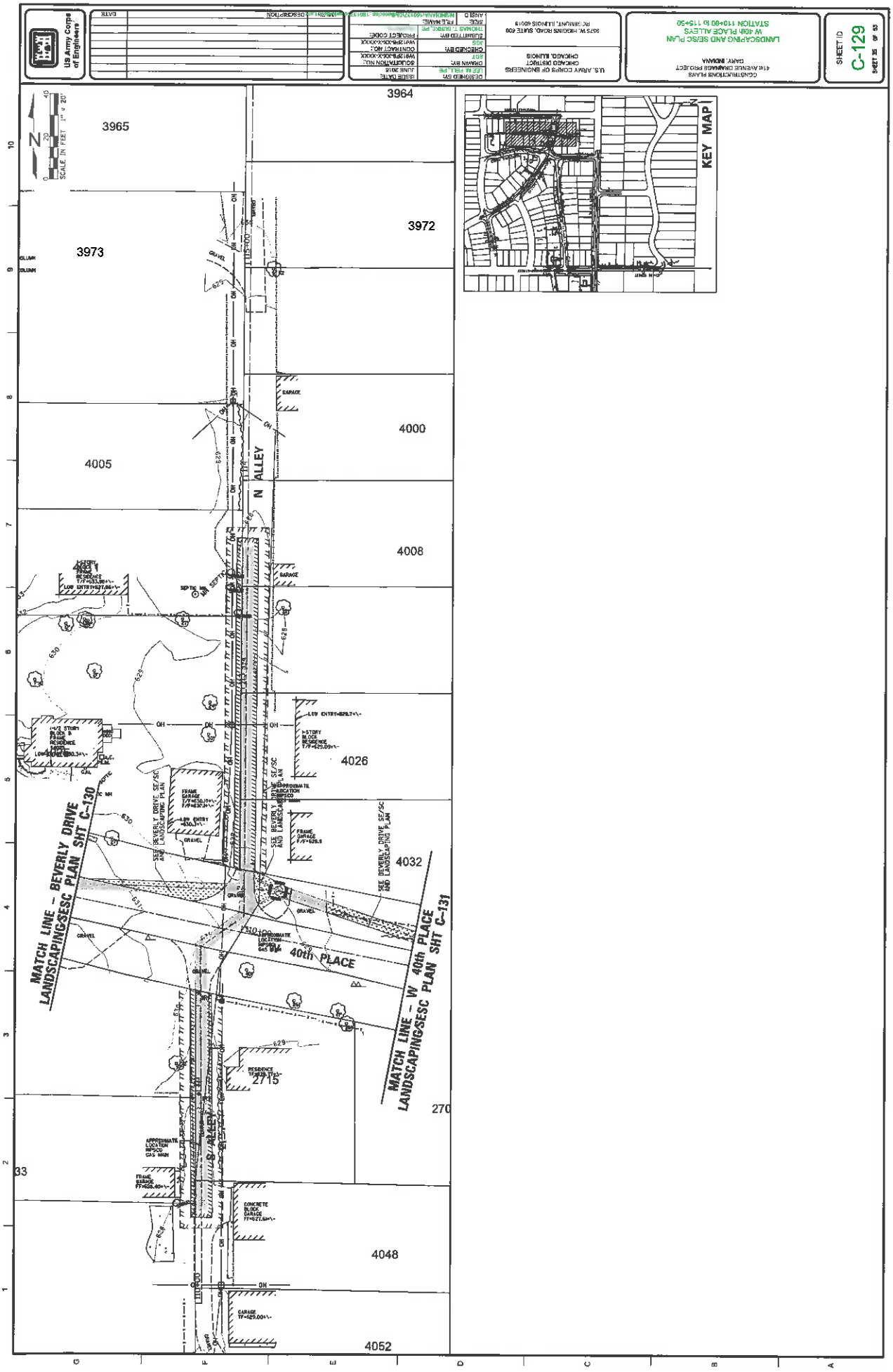
1979 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

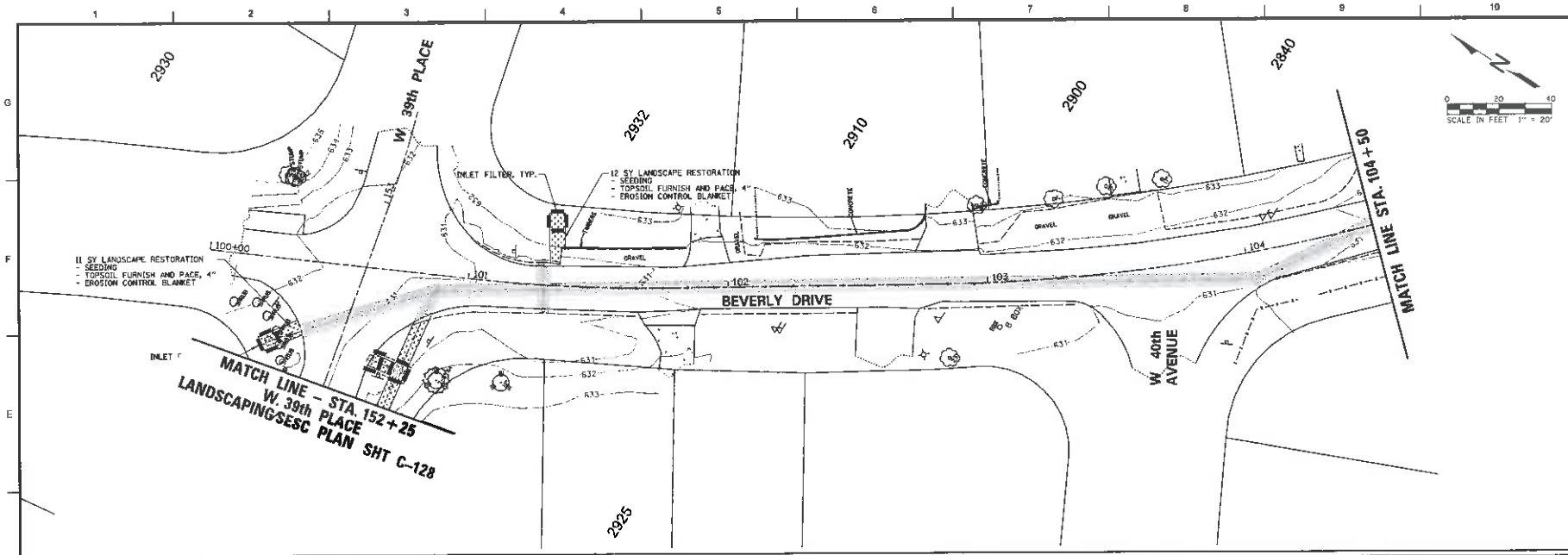
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

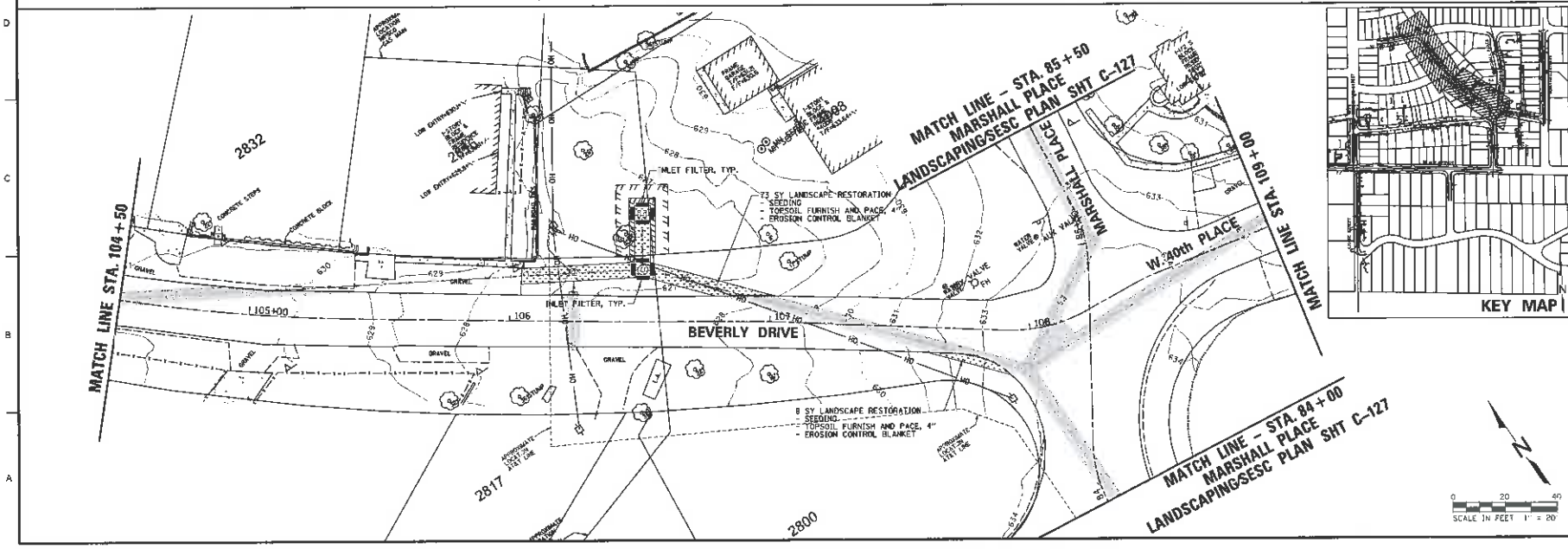
LANDSCAPING AND SE/SC PLAN
W 39th PLACE
STATION 150+00 to 153+00

SHEET ID
C-128
SHEET 34 OF 53

100%


US Army Corps of Engineers
DATE
DESCRIPTION
DESIGNED BY: LEE M. FULL, PE
ISSUE DATE: JUNE 2018
DRAWN BY: 007
SOLICITATION NO.: W912PB-XX-XXXXX
CONTRACT NO.: W912PB-XX-XXXXX
CHECKED BY: 009
SUBMITTED BY: THOMAS T. BURKE, PE
PROJECT CODE:
FILE NAME: NEIGHDAM-160170-Beverly-Drive-Landscaping-180131-C-129.dwg
ANSI D
SCALE
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
5975 W. HIGGINS ROAD, SUITE 400
RICHMOND, ILLINOIS 60019
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA
LANDSCAPING AND SE/SC PLAN
W 40th PLACE ALLEYS
STATION 110+00 to 115+50
SHEET ID
C-129
SHEET 35 OF 53
100%
KEY MAP
SCALE IN FEET 1" = 20'
3965
3964
3973
3972
4005
4000
4008
N ALLEY
4026
4032
40th PLACE
MATCH LINE - BEVERLY DRIVE
LANDSCAPING/SESC PLAN SHT C-130
MATCH LINE - W 40th PLACE
LANDSCAPING/SESC PLAN SHT C-131
SEE BEVERLY DRIVE SE/SC AND LANDSCAPING PLAN
2715
S ALLEY
4048
4052
GRAVEL
GARAGE
CONCRETE BLOCK GARAGE
FRAME GARAGE





US Army Corps of Engineers

DATE	DESCRIPTION	NUMBER

ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912KB-XX-B-XXXX
CONTRACT NO.: W912KB-XX-C-XXXX
PROJECT CODE:

DESIGNED BY:
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS T. NURSE, PE
SCALE: AS SHOWN
FILE NAME: U:\CEGIS\Civil\Grading_Mod13

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

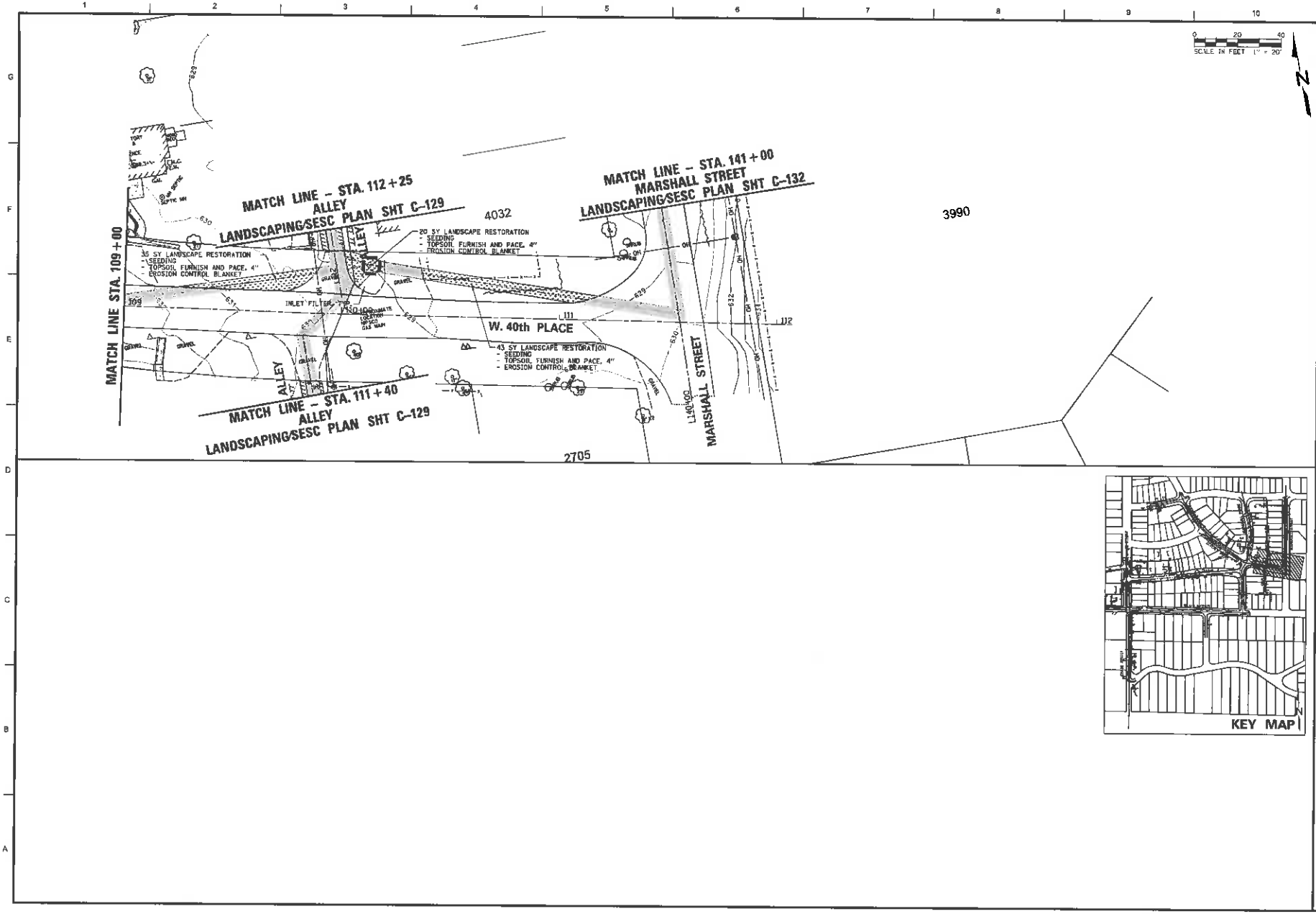
9275 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
416 FLOOD RISK MANAGEMENT PROJECT
GARY, INDIANA

LANDSCAPING AND SE/SC PLAN
BEVERLY DRIVE
STATION 100+00 to 109+00

SHEET ID
C-130
SHEET 34 OF 53

100%



US Army Corps of Engineers

DATE	DESCRIPTION

DESIGNED BY: LEE M. FELL PE
DRAWN BY: TDY
CHECKED BY: JSS
SUBMITTED BY: THOMAS E. BURKE PE
SIZE: ANSI D
ISSUE DATE: JUNE 2010
SOLICITATION NO.: W912P8-10-B-0006
CONTRACT NO.: W912P8-00-C-0006
PROJECT CODE: 3AA3P3A6
FILE NAME: 1:\WINDOWS\Desktop\Drawings\C-131.dwg

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

5979 W. HIGGINS ROAD, SUITE 6130
HUSHETON, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

LANDSCAPING AND SESC PLAN
W 40th PLACE
STATION 109+00 to 112+00

SHEET ID
C-131
SHEET 37 OF 63

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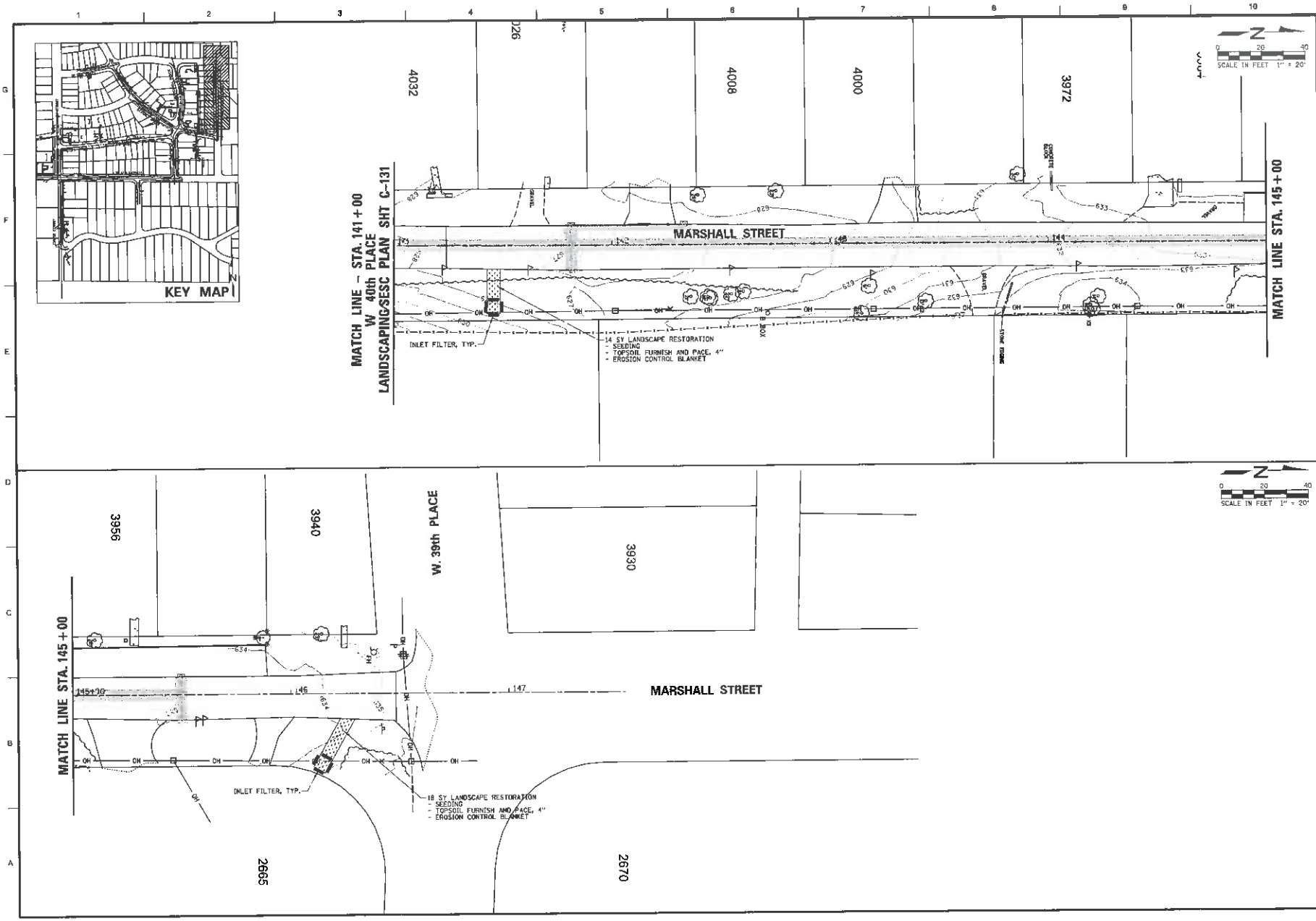

US Army Corps of Engineers®

DATE	DESCRIPTION

DESIGNED BY: LEE M. FEIL, PE
DRAWN BY:
CHECKED BY:
SUBMITTED BY: THOMAS T. BURKE, PE
SIZE: ANSI D
FILE NAME: USACE-CHICAGO/00173-Rosedale_BBLT/CAD/Sheet set/DESIGN

ISSUE DATE: JUNE 2018
SOLICITATION NO.: W912HA-XX-X-XXXX
CONTRACT NO.: W912P-XX-X-XXXX
PROJECT CODE: 1SUDPA19

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

5575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
4TH AVE. SEWER REHAB PROJECT
GARY, INDIANA

LANDSCAPING AND SESC PLAN
MARSHALL PLACE
STATION 140+00 to 147+00

SHEET ID
C-132
SHEET 38 OF 53

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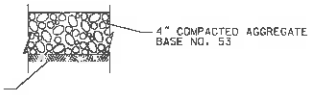
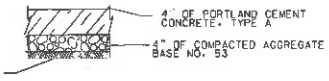
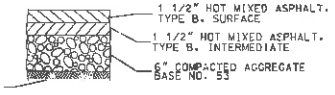


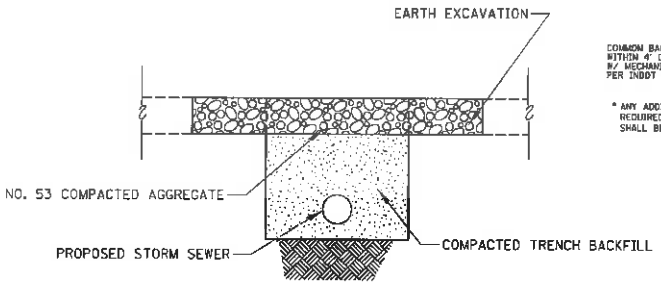
GRAVEL ALLEY RESTORATION DETAIL



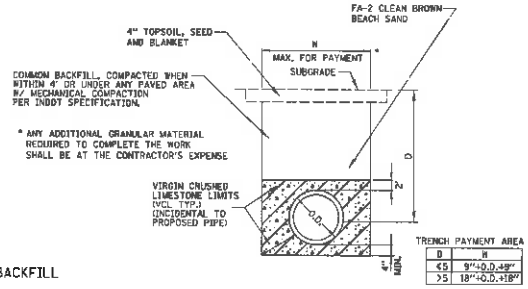
CONCRETE DRIVEWAY RESTORATION DETAIL



HMA DRIVEWAY RESTORATION DETAIL



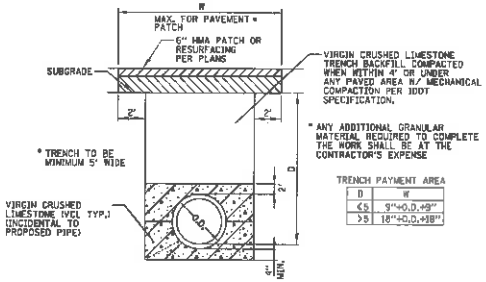
TYPICAL TRENCH DETAIL – GRAVEL ALLEY



TRENCH PAYMENT AREA

D	W
≤5	9"+O.D.+9"
>5	18"+O.D.+18"

TYPICAL TRENCH DETAIL–PARKWAY



TRENCH PAYMENT AREA

D	W
≤5	9"+O.D.+9"
>5	18"+O.D.+18"

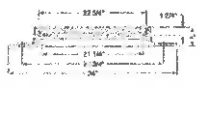
TYPICAL TRENCH DETAIL – PAVEMENT

R-1647-A
Manhole Frame, Solid Lid

Heavy Duty

Furnished with six 3/4" anchor holes on 23-3/4" diameter bolt circle.

Available Grate: R-2505-A



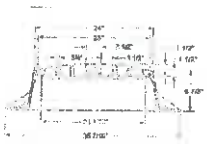
R-2578
Inlet Frame, Convex Grate

Heavy Duty

Barrel Diameter	Grate Type	Sq. Ft. Open	Grate Weight Lbs. Net
24"	C	1.0	68

Standard Grate (shown): Type C Convex
Alternate Grate(s):

Available Lid: R-1850-A



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SUBMITTED BY: [illegible]
SIZE: ANSI D
FILE NAME: [illegible]
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912DW-XX-XXXXX
CONTRACT NO.: W912DW-XX-C-XXXX
PROJECT CODE: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

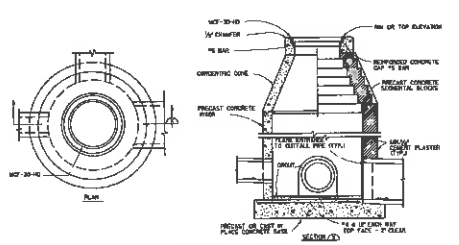
5979 W. HOUSTON ROAD, SUITE 100
ROCKFORD, ILLINOIS 61116

CONSTRUCTION PLANS
4TH AVENUE DRAINAGE PROJECT
GARY, INDIANA

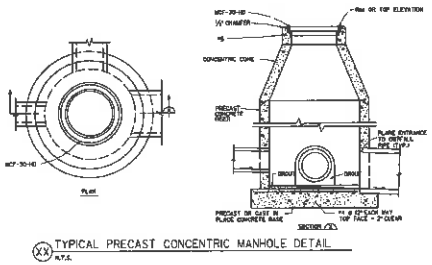
CONSTRUCTION DETAILS

SHEET ID
C-501
SHEET 39 OF 53

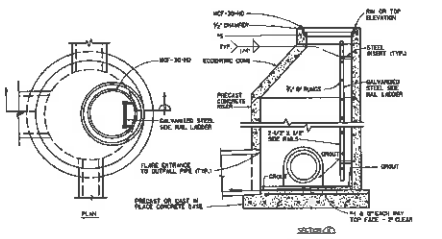
100%



(XX) TYPICAL CONCENTRIC MANHOLE DETAIL
N.T.S.



(XX) TYPICAL PRECAST CONCENTRIC MANHOLE DETAIL
N.T.S.



(XX) TYPICAL PRECAST ECCENTRIC MANHOLE DETAIL
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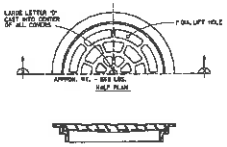
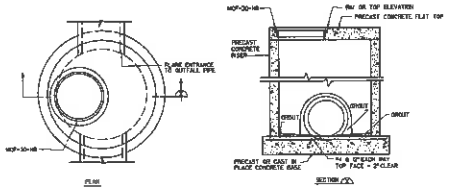


(XX) MANHOLE COVER & FRAME
MCF-30-HD
N.T.S.



(XX) TYPICAL PRECAST SHALLOW MANHOLE DETAIL
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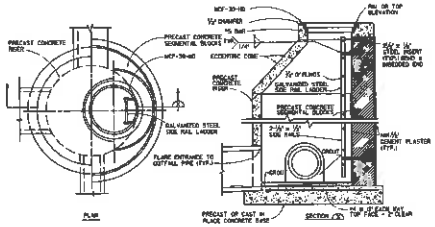
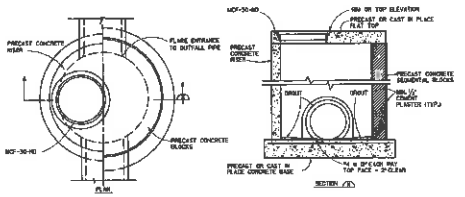
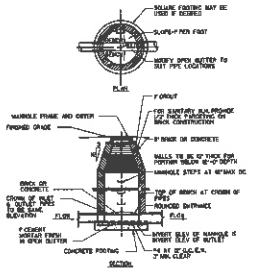


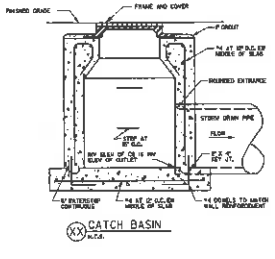
(XX) TYPICAL ECCENTRIC MANHOLE DETAIL
N.T.S.



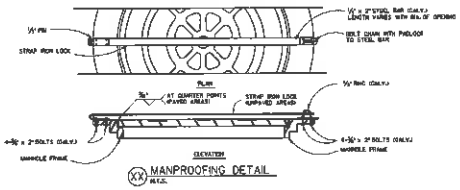
(XX) TYPICAL PRECAST SHALLOW MANHOLE DETAIL
N.T.S.



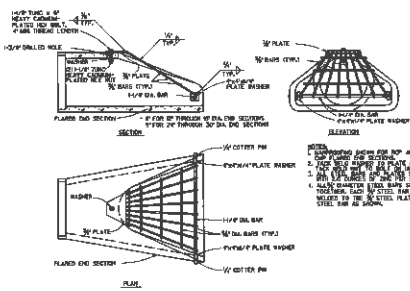
(XX) MANHOLE
N.T.S.



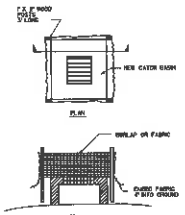
(XX) CATCH BASIN
N.T.S.



(XX) MANPROOFING DETAIL
N.T.S.



(XX) FLARED END SECTION STEEL BARRIER MANPROOFING DETAIL
N.T.S.



(XX) CATCH BASIN PROTECTION
N.T.S.

US Army Corps of Engineers

DATE	DESCRIPTION	MARK

ISSUE DATE: JUNE 2015
CONTRACT NO.: W912P8-XX-X-XXXX
CONTRACT NO.: W912P8-XX-X-XXXX
PROJECT CODES:
SHEET NO.: 4D
TOTAL SHEETS: 53

DESIGNED BY: CHRIS W. FEIL, PE
DRAWN BY: EDT
CHECKED BY:
SUBMITTED BY: THOMAS J. BURKE, PE
SCALE: AS NOTED
FILE NAME: C:\USERS\CHRIS.FEIL\DESKTOP\CONSTRUCTION DETAILS.DGN

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

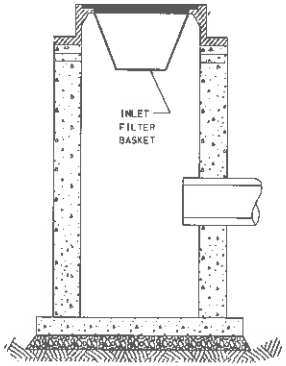
9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

CONSTRUCTION DETAILS

SHEET ID
C-502
SHEET 4D OF 53

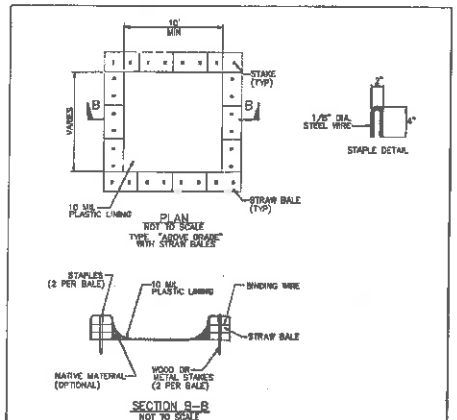
100%



1. AN INLET FILTER BASKET SHALL BE INSTALLED AS NOTED AND SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
2. THE INLET BASKET SHALL BE CLEANED ON A WEEKLY BASIS AND AFTER ANY RAINFALL EVENT.
3. INLET FILTER BASKETS SHALL BE "CATCH-ALL" BY MAR-MAC MANUFACTURING OR APPROVED EQUAL.

INLET BASKET DETAIL

NOT TO SCALE



NOTES:

1. ACTUAL LENGTH AND LOCATION TO BE DETERMINED IN FIELD.
2. PLASTIC (POLYETHYLENE) LINING SHOULD EXTEND OVER THE STRAW BALES.
3. STRAW BALES TO BE ENTRENCHED 4 INCHES INTO SOIL.

CONCRETE WASHOUT FACILITY

NOT TO SCALE

PRACTICE 1104
EROSION CONTROL BLANKET

DESCRIPTION

- Biodegradable organic or synthetic mulch incorporated into a polypropylene or similarly netting material. (Note: this practice is also included in the Indiana Erosion Control Handbook.)

PURPOSE

- To prevent erosion.

WHERE APPLICABLE

- Usually on slopes or in areas of concentrated flow.
- Area with high potential for erosion.

ADVANTAGES

- Provides temporary surface stabilization.
- Provides immediate erosion and water quality benefits.
- Reduces self crowding.
- Conserves moisture and increases seed germination and seedling growth.
- Applicable in areas of concentrated flow and steep slopes (where mulch alone often fails).

CONSTRAINTS

- Expensive.

DESIGN AND CONSTRUCTION GUIDELINES

Materials

- Organic (straw, excelsior, coconut fiber, etc.) or synthetic mulch material incorporated into a polypropylene or similar netting. Material may be biodegradable, photodegradable, or permanent.

Installation

- Select type and weight of blanket to fit site conditions (e.g. slope, channel, flow velocity).
- Install necessary erosion control devices.
- Grade site as specified on plans.
- Add topsoil where appropriate.
- Prepare seedbed, fertilize, and seed immediately after grading.
- Lay blankets on seeded areas following manufacturers directions. Blankets should be laid so they are in continuous contact with the soil, and upslope or upstream ones should overlap the lower ones by at least 3".
- Tuck the uppermost edge of the upper blankets into a check slot (slit trench) and backfill with soil. Tamp down.
- Anchor blankets as specified by the manufacturer. This usually involves driving 8"-8" wood or metal staples into the ground in a pattern determined by site conditions. Wood staples are preferable to metal staples. Wood staples will swell and hold better.

Exhibit 1104a: Proper installation of erosion control blankets in a drainageway (Source: Indiana Erosion Control Handbook)

Special Considerations

- Maximum life varies with material.
- Poor contact between the soil and the blanket resulting from improper stapling, or not using check slots, may cause water to flow under the blanket.

MAINTENANCE

- Inspect for erosion after each storm event during vegetation establishment.
- If any areas show erosion, pull back that portion of the blanket, add soil, re-seed, and re-lay and staple the blanket.
- Check area periodically after vegetation establishment.

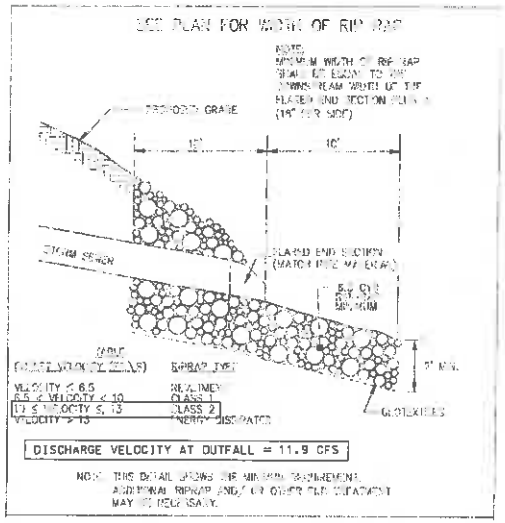
REFERENCES

Related Practices

- Practice 1101 Mulching.
- Practice 1102 Vegetative Stabilization.
- Practice 1105 Bonded Fiber Matrix.

Other Sources of Information

- Indiana Erosion Control Handbook.
- NRCS Standard Specifications.



PRACTICE 1002
RIPRAP-LINED APRON

DESCRIPTION

- Riprap aprons placed at outlet end of culverts, conduits, or channels. (Note: this practice is also included in the "Rock Chute" in the Indiana Erosion Control Handbook.)

Exhibit 1002a: Riprap Apron (Source: Indiana Erosion Control Handbook)

PURPOSE

- To reduce runoff velocity and prevent erosion at the outlet of a channel or culvert.

WHERE APPLICABLE

- Culvert outlets.
- Pipe conduits from all sediment basins and dry ponds as well as wet basin detention stormwater ponds.
- New channels constructed as outlets for culverts and conduits.
- Where outflows from conduits or channels do not exceed 10 feet per second.

ADVANTAGES

- Prevent scour at culvert stormwater outlets.
- Protects outlet structure.
- Minimizes the potential for downstream erosion by reducing the velocity or energy of concentrated stormwater flows.
- Reduces the effects of outlet pipe rust and material deposition.

CONSTRAINTS

- May require heavy maintenance on metal pipes.
- Not recommended for pipe outfalls of the top of slope, or on slopes steeper than 3:1.
- Contributing drainage area should be ≤ 100 acres.
- Peak runoff from a 10-year frequency, 24 hour storm event should be accommodated.
- Length and width of apron are calculated based on pipe diameter, design flow rate, and the absence or presence of downstream tailwater.

DESIGN AND CONSTRUCTION GUIDELINES

Materials

- Riprap.
- Geotextile fabric.

Installation

- Excavate the apron as an aesthetic surface dip or depression to allow for the placement of riprap.
- Construct it such that it adjusts to the density of the surrounding or adjacent material, and of such weight to protect fabric from wear.
- Place geotextile fabric over the excavation. If more than one piece of fabric is needed, then adjacent pieces should overlap the downstream piece by at least one foot.
- Install riprap to the lines and elevations shown on the design.
- Make sure the top of the riprap is level with or slightly below the adjacent ground.
- A portion of the apron below the outlet may be shaped into a bowl or a plunge pool to act as a stilling basin.
- Blend the apron smoothly into the surrounding grade.
- Stabilize all disturbed areas immediately following installation.

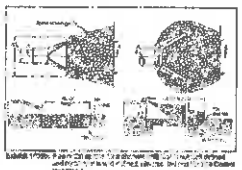


Exhibit 1002b: Apron Dimensions (Source: Indiana Erosion Control Handbook)

Special Considerations

- Choice of material should be based on the type of rock to be protected, flow velocity, and availability.
- Other materials, including gabions, wood chips, bark, and wood fiber have been found to be effective.
- Choose rock durability and shape based on the level of protection required.

MAINTENANCE

- Inspect and reapply mulch as necessary after storm events.
- Certify [illegible] when [illegible] established.

REFERENCES

Related Practices

- Practice 1101 Mulching.
- Practice 1102 Vegetative Stabilization.
- Practice 1105 Bonded Fiber Matrix.

Other Sources of Information

- Indiana Erosion Control Handbook.
- Silt Fence Manual.
- [illegible]

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

DESIGNED BY: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SUBMITTED BY: [illegible]
APPROVED BY: [illegible]
ISSUE DATE: [illegible]
SOLICITATION NO.: W912P8-XX-XXXXX
CONTRACT NO.: W912P8-XX-C-XXXX
PROJECT CODE: [illegible]
FILENAME: [illegible]

CONSTRUCTIONS PLANS
416 LAVENUE DRAINAGE PROJECT
GARY, INDIANA

EROSION CONTROL NOTES AND DETAILS

SHEET ID
C-503
SHEET 4 OF 53

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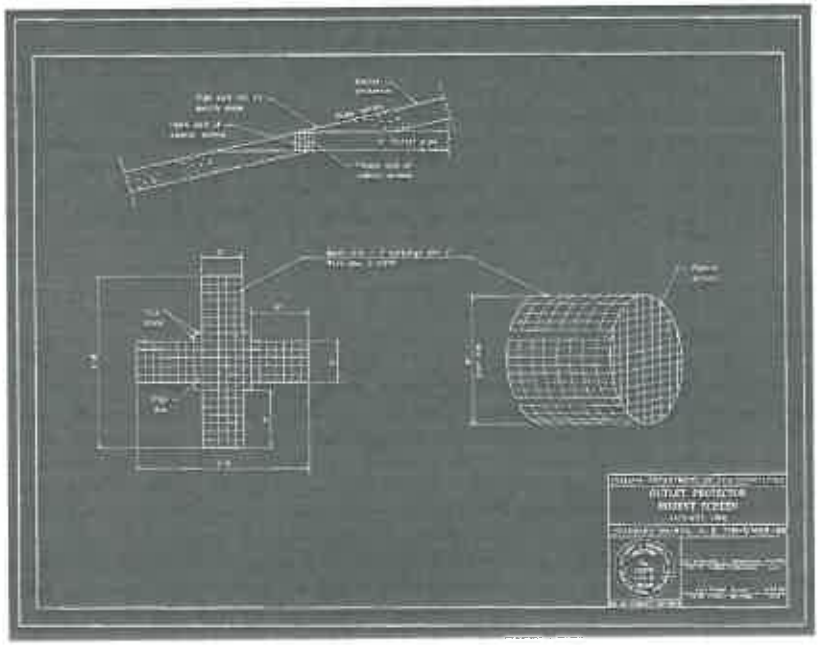


PRACTICE 105
SILT FENCING

DESCRIPTION
- Temporary barrier of entrenched geotextile fabric (filter fabric) stretched across and attached to supporting posts used to intercept sediment-laden runoff from small drainage areas of disturbed soil. (Note: this practice is also included in the Indiana Erosion Control Handbook.)

Exhibit 105a: Silt Fencing (Source: North Carolina Erosion Control Manual)

PURPOSE
- Cause the deposition of transported sediment load from sheet flows leaving disturbed areas.

WHERE APPLICABLE
- Situations where sediment laden runoff from small drainage areas are a concern.

ADVANTAGES
- Silt fences capture and retain sediment on the construction site thus protecting waterways, streets and other areas outside of the construction limits from sedimentation.
- Silt fences often serve to define construction limits to equipment operators as well as bystanders.
- Silt fences are usually more effective and less expensive than a Straw Bale Filter (Practice 106).

CONSTRAINTS
- Not appropriate where the maximum drainage area exceeds 1/4 acre per 100 feet of fence. Silt fencing is further restricted by slope steepness.

Land Slope	Max Drainage Length
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Exhibit 105b: Max imum distance above silt fence based on land slope. (Source: Indiana Erosion Control Handbook)

- Silt fence should not be used in the flow path of defined drainageways.
- Silt fence may be a high maintenance item during earth moving activities in adjacent areas, and during the rainy season.

DESIGN AND CONSTRUCTION GUIDELINES

Materials
- 2" x 2" hardwood posts or steel posts.
- 14 gauge, 6" mesh wire fence (optional).
- Woven or non-woven geotextile fabric with specified filtering efficiency and tensile strength.

Physical Property	Woven Fabric	Non-woven Fabric
Filtering efficiency	85%	85%
Tensile strength at 20% elongation:		
Standard strength	30 lbs/l.in.	50 lbs/l.in.
Extra strength	50 lbs/l.in.	70 lbs/l.in.
Slurry flow rate	0.3 gal./min./sq.ft.	4.5 gal./min./sq.ft
Water flow rate gal./min./sq.ft.	15 gal./min./sq.ft.	220
UV resistance	70%	85%

Exhibit 105c: Properties of woven versus non-woven silt fence fabric. (Source: Indiana Erosion Control Handbook)

Installation
- Dig an 8" deep, flat-bottomed or V-shaped trench along the entire intended fence line.
- Drive wood or steel support posts at least 1' into the ground, ≤ 8' apart (≤ 6' apart if not using support wire). Adjust spacing if necessary to ensure that posts are set at the low points along the fence.
- Fasten support wire to the up slope side of the posts, extending it 8" into the trench, or as recommended by the manufacturer.
- Run a continuous length of geotextile fabric on the up slope sides of the posts.

PRACTICE 102
TREE PRESERVATION AND PROTECTION

DESCRIPTION
- Methods to preserve and protect desirable existing trees from damage during construction. (Note: This practice is also included in the Indiana Erosion Control Handbook.)

Exhibit 102a: Tree preservation and protection (Source: [illegible])

PURPOSE
- To preserve and protect trees that have present or future value for their use in erosion protection, landscape and/or aesthetic value, or for other environmental benefits.

WHERE APPLICABLE
- Applicable to nearly every project.

ADVANTAGES
- Stabilize the soil and prevent erosion.
- Reduce stormwater runoff by intercepting rainfall, promoting infiltration, and lowering the water table through transpiration.
- Provide wildlife habitat.
- Increase property values and improve site aesthetics.
- Provides stream shading and cooling.

CONSTRAINTS
- Preserving and protecting trees may impede the maneuverability of large equipment.

DESIGN AND CONSTRUCTION GUIDELINES

Materials
- Standard steel posts or wood posts with a minimum cross sectional area of 3.0 sq.in.
- 40" high snow fence or 40" high plastic web fencing.

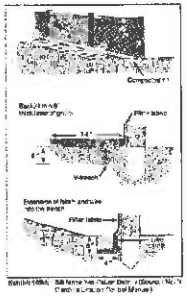


Exhibit 105d: Silt fence installation [illegible] (Source: North Carolina Erosion Control Manual)

- If a joint is necessary, mail the section to the nearest post with [illegible]
- Place the bottom 1' of fabric in the 8" deep trench, extending the remaining 4" toward the up slope side
- Backfill the trench with compacted earth or gravel

Special Considerations
- Fence should be at least 10' from the toe of the slope, to provide for sediment storage.
- The height of the fence should be 24"-36" above the ground surface.
- Silt fences should not be placed in areas of concentrated flow.
- Improper placement and/or installation can ineffectively and even create erosion problems.

MAINTENANCE
- Inspect fence periodically and after each storm event
- Replace fencing as necessary.
- Remove deposited sediment when it reaches a half the height of the fence as its (weight gain), or if the fence begins to bulge.

REFERENCES

Related Practices
- Practice 106 Straw Bale Filter.
- Practice 1102 Vegetative Stabilization.

Other Sources of Information
- Indiana Erosion Control Handbook.
- NRCS Standard Specifications
- North Carolina Erosion Control Manual

Installation
- Place barriers around protected and preserved trees to prevent the approach of equipment at the drip line of trees to be retained.
- Do not cut tree roots inside the tree drip line.
- Do not place equipment, construction materials, topsoil, or fill dirt within the limit of the drip line of the trees to be saved.
- Remove barriers during final site cleanup.

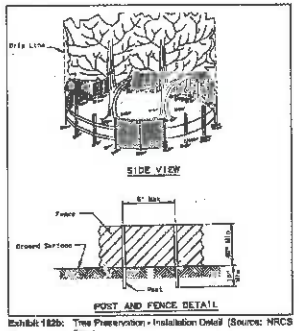


Exhibit 102b: Tree Preservation - Installation Detail (Source: NRCS Files)

Special Considerations
- Select trees to be saved prior to implementing construction activities. In general, leaving larger trees (8" or larger) will provide more shading, habitat, and food sources.
- Thinning undesirable trees ahead of time gives existing trees a chance to adjust to a more open environment.
- Prune low-hanging limbs of preserved trees that could otherwise be broken off by equipment.
- Try to leave trees in groups to avoid sun scald, frost cracks, excessive branching, and windthrow.
- In many cases, dead trees and cavities are important components of wildlife habitat. Unless the elimination of these features are essential for the project, these features may be left undisturbed.

MAINTENANCE
- Repair damaged roots by cutting off the damaged areas and painting with tree paint. Spread peat moss, wood chips or moist topsoil over exposed roots.
- Repair damage to bark by trimming around damaged areas. Taper the cut to provide drainage, and paint with tree paint.
- Cut all damaged limbs above the tree collar at the trunk or main branch. Use three separate cuts for each branch to avoid peeling bark from healthy areas of the tree.

REFERENCES

Related Practices
- Practice 1102 Vegetative Stabilization.
- Practice 1202 Stream Environment Enhancement.

Other Sources of Information
- North Carolina Erosion Control Manual.
- Indiana Erosion Control Handbook.
- NRCS Standard Specifications

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: [illegible] | DRAWN BY: [illegible] | CHECKED BY: [illegible] | SUBMITTED BY: [illegible] | SIZE: ANSI D | FILE NAME: [illegible]

ISSUE DATE: [illegible] | SOLICITATION NO.: W912PS-XX-X-XXXX | CONTRACT NO.: W912PS-XX-C-XXXX | PROJECT CODE: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

1375 W. HIGGINS ROAD, SUITE 1-3
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EROSION CONTROL NOTES AND DETAILS

SHEET ID
C-504
SHEET 42 OF 53

100%

NOTES:

STABILIZATION MEASURES SHOULD BE INITIATED WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. AREAS OF THE SITE THAT WILL REMAIN IDLE FOR 14 CALENDAR DAYS OR MORE SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 CALENDAR DAYS.

WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 7TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION SHALL BE INITIATED AS SOON AS PRACTICABLE THEREAFTER. ONCE CONSTRUCTION ACTIVITY IN AN AREA HAS PERMANENTLY CEASED, THAT AREA SHOULD BE PERMANENTLY STABILIZED. TEMPORARY PERIMETER CONTROLS SHOULD BE REMOVED AFTER FINAL STABILIZATION OF THOSE PORTIONS OF THE SITE UPWARD OF THE PERIMETER CONTROL.

THE OWNER, OR THEIR AUTHORIZED AGENT AND THE CONTRACTOR ARE RESPONSIBLE FOR INSPECTING ALL SEDIMENT AND EROSION CONTROL MEASURES AT A MINIMUM OF ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5-INCH (OR GREATER) RAIN EVENT, OR SNOWFALL EQUIVALENT.

CONSTRUCTION SEQUENCING

1. NOTIFY MS4 REPRESENTATIVE 48 HOURS PRIOR TO LAND DISTURBANCE.
2. INITIATE SELF-MONITORING PROGRAM.
3 INSTALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.
   A. STABILIZED CONSTRUCTION ENTRANCE;
   B. CONSTRUCTION FENCE AND SILT FENCE INSTALLATION;
   B. SELECTIVE VEGETATION REMOVAL;
   C. EXISTING INLET PROTECTION INSTALLATION.
4. INSTALL INLET PROTECTION WITHIN ALL STORM STRUCTURES WITH "OPEN" GRATES.
5. INSTALL NON-ERODIBLE TEMPORARY COFFERDAM(S).
6. INSTALL SUMP PIT AND PUMP-AROUND.
7. CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITY.
8. INSTALL STORM SEWER.
9. BACKFILL PIPE.
10. BACKFILL AND STABILIZE SIDE SLOPES ADJACENT TO THE END SECTIONS.
11. INSTALL PERMANENT OR TEMPORARY SOIL STABILIZATION AND LANDSCAPING. TEMPORARY SEED ALL AREAS OF BARE SOIL INACTIVE FOR 14 DAYS OR MORE.
12. MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE.
13. REPLACE THE PAVEMENT.
14. PERMANENTLY STABILIZE WITH SEED AND EROSION CONTROL BLANKET.
15. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES AFTER THE AREA IS STABILIZED WITH VEGETATION.

NOTES:
1. COFFERDAM SHALL BE INSTALLED TO PREVENT WATER FROM ENTERING EXCAVATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL BARRICADES, SIGNS, LIGHTS AND OTHER DEVICE INSTALLED ARE IN PLACE AND OPERATING 24 HOURS EACH DAY INCLUDING SUNDAYS AND HOLIDAYS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DEWATER AND DIVERT ALL WATER (GROUND, STORM, AND CONSTRUCTION) DURING CONSTRUCTION IN ORDER TO KEEP THE CONSTRUCTION AREA FREE OF WATER. CONSTRUCTION OF SUMP PIT, FILTER PADS BYPASS PUMPING, INCLUDING SILT BAGS AND AN ENERGY DISIPATION SURFACE FOR THE PUMPS, SHALL BE PAID FOR AS SITE DEWATERING. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO SIZE THE PUMPS APPROPRIATELY. THE METHOD OF WATER DIVERSION SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND STORM WATER MANAGEMENT BOARD.
4. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REVIEW THE WEATHER FORCAST AND PERFORM CONSTRUCTION DURING A PREDOMINANTLY DRY TIME FRAME.
5. NO CONSTRUCTION EQUIPMENT SHALL WORK IN FLOWING WATER. WORK IN AND NEAR CRITICAL AREAS SHALL BE ISOLATED FROM FLOW. THE DEWATERING PLAN SHALL BE SUBMITTED TO TOWN OF DYER FOR APPROVAL PRIOR TO CONSTRUCTION.
6. THE CONCRETE WASHOUT MUST BE OF THE PORTABLE TYPE THAT CAN BE PLACED ON THE PAVEMENT DURING WORK HOURS AND MUST BE CLEANED AND STORED OUTSIDE THE LIMITS OF THE SPECIAL MANAGEMENT AREA WHEN NOT IN USE.
7. STOCKPILE AND STORAGE LOCATION TO BE ADJUSTED TO AVOID BEING PLACED OVER ANY BP HIGH PRESSURE PETROLEUM PIPELINE.
8. RIPRAP AND FILTER FABRIC SHALL BE ENVELOPED AT THE BOTTOM OF THE END SECTION, PER SECTION 904.05 OF STANDARD SPECIFICATIONS.

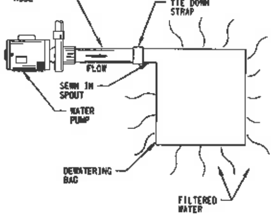
STREET SWEEPING/CONSTRUCTION ENTRANCE DETAILS

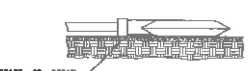
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL ADJACENT STREETS REMAIN FREE OF DIRT AND DEBRIS AT ALL TIMES.
2. CONTRACTOR SHALL UTILIZE EXISTING PAVEMENT AREAS WITHIN THE LIMITS OF CONSTRUCTION AS STABILIZED CONSTRUCTION ENTRANCES. THESE ENTRANCES SHALL BE CONTINUALLY MONITORED AND IMMEDIATELY CLEANED AS NECESSARY. ACCUMULATED SEDIMENT AND STONE SHOULD BE REMOVED FROM THE STABILIZED CONSTRUCTION ENTRANCE AS NEEDED.
3. STREET SWEEPING SHALL BE UTILIZED TO CLEAN ADJACENT ROADWAYS AS NEEDED. ROADWAYS SHALL BE CLEANED TO REDUCE SEDIMENT, DIRT OR STONE TRACKED FROM THE SITE.
4. VEHICLES HAULING ERODIBLE MATERIAL TO AND FROM THE CONSTRUCTION SITE SHOULD BE COVERED WITH A TARP.
5. SHOULD EXCESS SEDIMENT ACCUMULATE AT THE CONSTRUCTION ENTRANCES, CONTRACTOR SHALL INSTALL A TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD, SUCH AS THE AGES MUD MAT OR EQUAL, AS A SEDIMENT CONTROL MEASURE. CONTRACTOR SHALL FOLLOW ALL APPROPRIATE INSTALLATION SPECIFICATIONS OF THE MANUFACTURER. IF UTILIZED, THIS MAT SHALL BE INSPECTED DAILY TO REMOVE BUILT-UP DEBRIS AND TO INSPECT FOR BREAKS OR TEARS IN THE MATERIAL.
6. MINIMUM LENGTH OF CONSTRUCTION ENTRANCE SHALL BE 50 FEET, MINIMUM WIDTH SHOULD BE 12 FEET.
7. FLUSHING SHOULD ONLY BE USED IF WATER FROM THE CONSTRUCTION DRIVE CAN BE CONVEYED INTO A SEDIMENT TRAP OR BASIN.

DEWATERING BAG DETAIL

THE PURPOSE OF A DEWATERING BAG/TUBE IS TO COLLECT SEDIMENT CONTAINED IN THE DISCHARGED WATER, TO PREVENT THE SCOUR AND EROSION FROM WATER EXITING A PIPE AT HIGH VELOCITY, TO DEFUSE THE WATER OVER A WIDER AREA TO MINIMIZE EROSION AS THE WATER DRAINS AWAY, AND TO RETAIN OIL CONTAINED WITH EFFLUENT.

A DEWATERING BAG OR APPROVED EQUAL SHOULD BE USED FOR ANY APPLICATION WHEN WATER IS PUMPED ON TO THE SITE.





SIDE VIEW

Mechanical Properties	Test Method	Minimum Requirements
Grab Tensile Strength	ASTM D 4632	205 LBS
Grab Tensile Elongation	ASTM D 4632	50%
Puncture Strength	ASTM D 4833	130 LBS
Mullen Burst Strength	ASTM D 3786	400 PSI
Trapezoid Tear Strength	ASTM D 4533	85 LBS
UV Resistance	ASTM D 4355	70%
Apparent Opening Size	ASTM D 4751	80 US SIEVE
Flow Rate	ASTM D 4491	90 GAL/MIN/SF
Permittivity	ASTM D 4491	1.40

INSTALLATION AND USE:

1. DEWATERING BAG SHALL BE PLACED ON FILTER FABRIC. DOWNSTREAM SURFACE SHALL BE PERMANENTLY OR TEMPORARILY STABILIZAED TO PREVENT ADDITIONAL SEDIMENT FROM REACHING THE RECEIVING STREAM OR STORM SEWER.
2. DEWATERING BAG SHALL BE MADE FROM NON-WOVEN, NEEDLEPUNCHED, POLYPROPYLENE GEOTEXTILE. GEOTEXTILE MUST MEET THE REQUIREMENTS AS NOTED ABOVE.
3. THE BAG SHALL BE ATTENDED AND MONITORED TO ENSURE FLOW RATES ARE NOTE EXCEEDED.
4. REMOVE AND REPLACE DEWATERING BAG WHEN HALF FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL AMOUNT.
5. SECONDARY EROSION CONTROL MEASURES MAY BE NECESSARY TO FURTHER FILTER STORMWATER OR TO PROVIDE ADDITIONAL STABILIZATION DOWNSTREAM.

MAINTENANCE AND DISPOSAL:

1. REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT AWAY FROM WATERWAYS OR ENVIRONMENTALLY SENSITIVE AREAS. SLIT OPEN DEWATERING BAG AND REMOVE ACCUMULATED SEDIMENT. DISPOSE OF BAG AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY, OR: OPEN BOTH ENDS OF THE SEDCATCH DEWATERING BAG, PICK IT UP IN THE CENTER AND DUMP ACCUMULATED SEDIMENT OUT OF BOTH ENDS. ALLOW TO DRY STORE FOR RE-USE, OR AS DIRECTED BY ENGINEER OR INSPECTOR.

PERMIT POSTING DETAILS

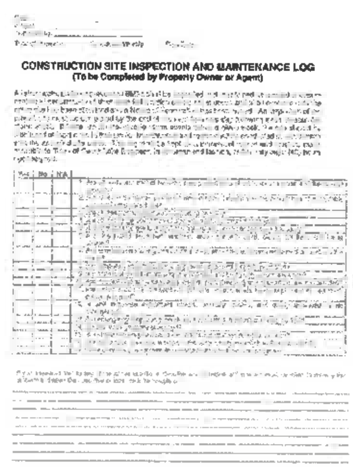
1. POST SIGNED RULE 5 NOI WITH PERMIT # AT LOCATION VISIBLE TO THE PUBLIC.
2. ENSURE THAT THE RULE 5 PERMIT IS ON THE NOI.
3. ENSURE THAT THERE IS A NOTE OF WHERE A COMPLETE SET OF PLANS ARE LOCATED.
4. ENSURE THAT THE POSTING IS WATERPROOF.
5. POSTING SHALL INCLUDE ALL OTHER APPLICABLE PERMITS.
6. POSTING SHALL BE LOCATED AS SHOWN ON THE CONSTRUCTION PLANS, NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE.

DUST CONTROL

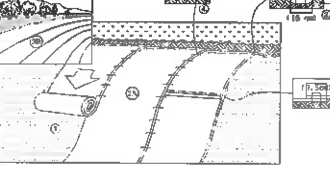
A WATER TRUCK MAY BE NECESSARY ONSITE TO LIMIT THE AMOUNT OF DUST LEAVING THE SITE. THE FOLLOWING LIST OF CONTROL MEASURES MAY BE IMPLEMENTED ONSITE TO LIMIT THE GENERATION OF DUST AS NEEDED:
- SPRINKLING/IRRIGATION
- MULCH
- TILLAGE
- VEGETATIVE COVER
- SPRAY-ON SOIL TREATMENTS
- STONE

SELF-MONITORING DETAILS

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A SELF-MONITORING PROGRAM IS IMPLEMENTED.
2. AN INSPECTION OF THE SITE MUST BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY FOLLOWING EACH MEASURABLE STORM EVENT (0.50" OR GREATER).
3. IF THERE ARE NOT MEASURABLE STORM EVENTS IN A GIVEN WEEK, THE SITE SHOULD BE MONITORED AT LEAST ONCE IN THAT WEEK.
4. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH THE ACCEPTED SITE PLANS. THIS LOG SHALL BE KEPT AS A PERMANENT RECORD AND MUST BE MADE AVAILABLE TO LAKE COUNTY MS4 INSPECTOR, IN AN ORGANIZED FASHION, WITHIN FORTY-EIGHT (48) HOURS UPON REQUEST.


CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG
(To be Completed by Property Owner or Agent)

EROSION CONTROL BLANKET DETAILS



EROSION CONTROL BLANKET SPECIFICATIONS:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEE.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12' OF RECP'S OVER COMPACTED SOIL WITH A ROW OF BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12 APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECP'S (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2' - 5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 212" APART ACROSS ENTIRE RECP'S WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.
6. EROSION CONTROL BLANKET SHALL BE BIODEGRADABLE AND SUITABLE FOR MOWABLE AREAS, AS NOTED ON THE ENGINEERING PLANS.

TEMPORARY SEEDING DETAILS

SEED SPECIES	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES
WHEAT OR RYE	150 LBS	1 TO 1 1/2 INCHES	SEPT 15- OCT 30
SPRING OATS	100 LBS	1 INCHES	MARCH 1 - APRIL 15
ANNUAL RYEGRASS	40 LBS	1/4 INCHES	MARCH 1 - MAY 1 AUG 1 - SEPT 1

TEMPORARY SEED ALL AREAS OF BARE SOIL THAT WILL REMAIN INACTIVE FOR 14 DAYS OR MORE:

1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. INSPECT WITHIN 24 HOURS OF EACH 0.5" OR GREATER RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS. CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIATELY. MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY). RESEED FERTILIZE AND APPLY MULCH WHERE NECESSARY.
3. IF NITROGEN DEFICIENCY IS APPARENT, TOP DRESS FALL SEEDED WHEAT OR RYE SEEDING WITH 50 POUNDS PER ACRE OF NITROGEN IN FEBRUARY OR MARCH.
4. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEED BED WITH A ROLLER OR CULTI-PACKER AFTER COMPLETING SEEDING OPERATIONS.
5. DAILY SEEDING WHEN THE SOIL IS MOIST IS USUALLY MOST EFFECTIVE.
6. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.
7. APPLY MULCH AND ANCHOR IT IN PLACE.

PERMANENT SEEDING DETAILS

INDOT SEED MIXTURE R (OR APPROVED EQUAL) SHALL BE APPLIED AT A RATE OF 170 LBS/AC.

SEED MIXTURE SHALL CONSIST OF THE FOLLOWING
- KENTUCKY 31 FESCUE @ 95 LBS/AC
- PERIENNIAL RYEGRASS @ 65 LBS/AC
- JASPER RED FESCUE @ 6 LBS/AC

SITE PREPARATION

1. GRADE THE SITE TO ACHIVE POSITIVE DRAINAGE.
2. ADD TOPSOIL OR COMPOST MULCH TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY).

SEEDBED PREPARATION:

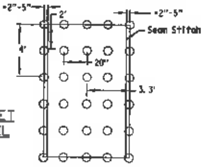
1. TEST SOIL TO DETERMINE PH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST AND WORK INTO THE UPPER TWO TO FOUR INCHES OF SOIL. IF TESTING IS NOT DONE, APPLY 400 TO 600 LBS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED, USE A DISK OR RAKE, OPERATED ACROSS THE SLOPE, TO WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL.

OPTIMUM SEEDING DATES ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. SEEDING OUTSIDE OR BEYOND THE OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RE-SEEDING OR OVERSEEDING MAY BE REQUIRED IF ADEQUATE SURFACE COVER IS NOT ACHIEVED. RE-SEEDING OR OVERSEEDING CAN BE EASILY ACCOMPLISHED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.

CONSTRUCTION SEQUENCE
1. SELECT A SEEDING MIXTURE AND RATE. SELECT SEED MIXTURE BASED ON SITE CONDITIONS, SOIL pH, INTENDED LAND USE, AND EXPECTED LEVEL OF MAINTENANCE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTI-PACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
3. MULCH ALL SEEDED AREAS AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS. INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED. CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE DENSITY OF 80 PERCENT OR MORE.

MAINTENANCE AND INSPECTION:
1. CHECK FOR EROSION OR MOVEMENT OF MULCH. REPAIR DAMAGED, BARE, GULLIED, OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RE-SEED AND APPLY AN ANCHOR MULCH.
2. IF PLANT COVER IS SPARSE OR PATCHY, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RE-SEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS. IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL pH OR NUTRIENT DEFICIENCY. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.). IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS. ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS. FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE-HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

EROSION CONTROL BLANKET STAPLE PATTERN DETAIL



US Army Corps of Engineers

DESIGNED BY: LEE M. FELL, PE	ISSUE DATE: JUNE 2016
DRAWN BY:	SOLICITATION NO.: W912P6-XX-X-XXXX
CHECKED BY:	CONTRACT NO.: W912P6-XX-X-XXXX
SUBMITTED BY: THOMAS T. BURKE PE	PROJECT CODE:
SIZE: ANSI D	FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

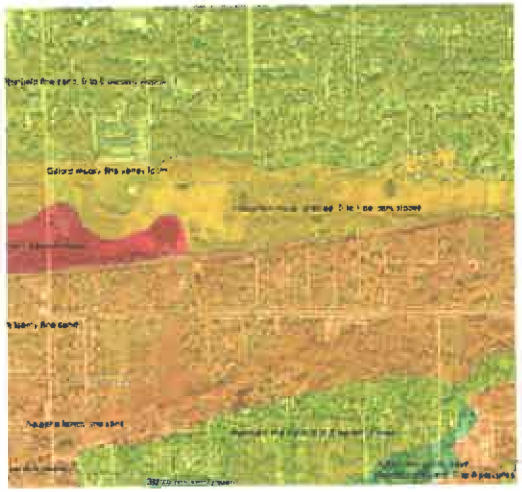
EROSION CONTROL NOTES AND DETAILS

MARK	DESCRIPTION	DATE

SHEET ID
C-505
SHEET 43 OF 53

100%

SOILS MAP



Part A – Assessment of Construction Plan Elements

A1	An index is hereby provided.
A2	Site plans, in lieu of a reduced plat, are provided in this plan set.
A3	The purpose of this project is to construct storm sewer improvements on Main Street (53rd Avenue) approximately 1 mile west of U.S. Hwy. 41 (Wicker Avenue). This location is at the intersections of the Town of Dyer, Town of Munster and Town of Schererville. The overall project limits extend into the jurisdiction of all three towns, with the majority of the work within the Town of Dyer. An existing collapsed culvert, along with existing 72" and 84" diameter storm sewer will be removed and replaced with new 72" and 84" diameter RCP storm sewer pipe. An additional scope of work under consideration is the installation of new 24" diameter storm sewer on the south side of Main Street to connect the Briar Ridge pond outlet to the new 72" RCP storm sewer.
A4	Project location maps are provided on Sheet 1.
A5	The project site is located in the far northeast section of the Town of Dyer, and crosses over into the jurisdictions of the Town of Munster and the Town of Schererville, in Lake County, Indiana. The project is on Main Street (53rd Avenue) and approximately 1 mile west of U.S. Hwy. 41 (Wicker Avenue); located in the NE ¼ of Section 6, Township 35 North, Range 9 West, St. John Township, with LAT: 41 31'23" N; and LONG: 87°29'27" W.
A6	Refer to Sheets 8 through 12 for the location of proposed site improvement.
A7	14-digit Hydrologic Unit Code: 07120003030030 (Hart Ditch (Plum Creek)-Dyer Ditch.
A8	A Rule 5 Permit is required for this project. The permitting authority for the Rule 5 Permit is the Indiana Department of Environmental Management (IDEM), under the authority of the Environmental Protection Agency (EPA).
A9	Runoff from disturbed areas will sheet drain to Briar Creek, located north of the project site. Briar Creek flows to the northwest toward Hart Ditch.
A10	Adjacent watercourse is Briar Creek.
A11	The ultimate receiving water from the project site is Hart Ditch.
A12	There are no known abandoned wells or other potential means of discharge of runoff to groundwater.
A13	There are no Special Flood Hazard Areas (SFHAs) adjacent to the project site. Refer to FIRM Map Number 18089C0138E.
A14	This project involves the replacement of existing underground storm sewer infrastructure which will involve the disturbance of the surface lawn area and street located above the storm sewer pipe to be replaced. The lawn areas will be replaced in-kind and the street pavement will be replaced in-kind as well. Thus, we do not anticipate any appreciable difference between pre-construction and post-construction peak discharge runoff quantities and velocities.
A15	Adjacent land use is a mix of single-family and multi-family residential.
A16	Refer to Sheet 13 for the construction limits showing the approximate extents of disturbance.
A17	The proposed site is currently grass roadside right-of-way and paved roadway.
A18	Refer to Sheet 15 for soils map and descriptions.
A19	Proposed stormwater systems are shown on Sheets 8 through 12.
A20	No offsite construction activities will be conducted for this project.
A21	The proposed location of a temporary on-site stockpile and material storage area is identified on Sheet 14.
A22	Existing site topography is shown on Sheets 6 and 7.
A23	Proposed site topography is shown on Sheets 8 through 13.

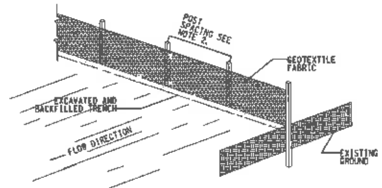
Part B – Stormwater Pollution Prevention Plan – Construction Component

B1	Pollutant sources associated with construction activities are: eroded soils and sediments, dust, oil, greases, coolants, petroleum fuels and other fluids associated with the operation of construction machinery, and concrete waste. Temporary erosion control measures will be installed to minimize eroded soils from entering stormwater. The contractor shall store fluids in a safe manner and operate machinery so as to minimize leakage and spills. Concrete waste should be properly disposed of in the designated concrete washout.
B2	A sequence describing stormwater quality measure implementation relative to land disturbance activities is provided on Sheet 14.
B3	Refer to Sheet 14 for the location of the stabilized construction entrance.
B4	Silt fence will be used as sediment control measures for sheet flow areas. Refer to Sheets 14 and 15 for locations, details, and specifications for sediment control measures under sheet flow conditions.
B5	Curb logs will be used as sediment control measures for concentrated flow areas. Refer to Sheets 14 and 16 for locations, details, and specifications for sediment control measures under concentrated flow conditions.
B6	Inlet filter baskets will be used as a protection measure for existing storm sewer inlets within the construction limits. Refer to Sheets 14 and 16 for locations, details, and specifications for storm sewer inlet protection measures.
B7	Runoff control measures such as diversions and slope drains are not necessary for this project since runoff from the disturbed area is primarily sheet flow.
B8	The stormwater outlets for the existing 72" diameter storm sewer and the relocated 84" diameter storm sewer will both be replaced. During construction, the area of the stormwater outlets will be protected by temporary cofferdams to keep the work area dry. The outlets will be installed with Class 2 Riprap, per Sheet 14.
B9	Grade stabilization structures are not proposed for this project.
B10	Refer to Sheets 14 through 17 for locations, details, dimensions, and specifications for each stormwater quality measure.
B11	Refer to Sheets 14 and 16 for temporary surface stabilization methods.
B12	Refer to Sheets 14 and 16 for permanent surface stabilization methods.
B13	Materials/substances expected to be present onsite during construction include: petroleum-based products, antifreeze and concrete. All liquid materials such as gasoline and oil shall be stored in tightly sealed containers which are clearly labeled. Onsite vehicles will be monitored for leaks and receive regular maintenance to reduce the chance of leakage. Any accidents and spills must be immediately reported to the Indiana Department of Environmental Management spill hotline: (888) 233-7745.
B14	Refer to Sheets 14 through 17 for monitoring and maintenance guidelines for each proposed stormwater quality measure.
B15	Erosion and sediment control specifications for individual lots: N/A.

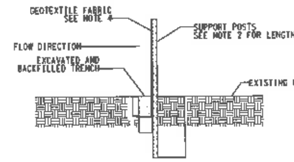
Part C – Assessment of Stormwater Pollution Prevention – Post-Construction Component

C1	The land use is a public roadway and the associated adjacent grassed right-of-way. The pollutant sources associated with this land use may include, but are not limited to, pollutants from vehicles traversing the roadway, eroded soils and sediments, trash from littering, and pollutants (oil, antifreeze, brake dust, etc.) from vehicles, machinery, and equipment used to maintain the road pavement and lawn right-of-way.
C2	A sequence describing stormwater quality measure implementation, including post-construction measures, is provided on Sheet 14.
C3	The post-construction stormwater quality measures are vegetative cover of lawn areas, erosion control blankets for bank stabilization, and riprap protection of the 72" and 84" storm sewer outfalls that discharge into Briar Creek. Refer to Sheet 14 for post-construction stormwater quality measures.
C4	Refer Sheets 14 and 16 for locations, details, dimensions, and specifications for post-construction stormwater quality measures.
C5	The Towns of Dyer, Munster, and Schererville will be responsible for future long-term maintenance of post-construction measures (vegetative cover) including weeding, mowing, erosion repair, and re-planting, for the project areas that are located and fall within their respective municipal jurisdictions.

BELTED SILT FENCE DETAILS



ISOMETRIC VIEW



TYPICAL SECTION

WRAP JOINT DETAIL

SILT FENCE GENERAL NOTES:

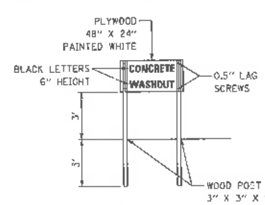
1. TEMPORARY SILT FENCE SHALL BE INSALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. THEY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. FILTER FABRIC SHALL MEET THE REQURIEMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE TABLE 1 OR 2, CLASS I WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 WOVEN.
3. FENCE POSTS SHALL BE EITHER STANDARD STEEL POST OR A WOOD POST WITH A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQ IN.

INSTALLATION.

1. THE SILT FENCE SHALL BE ATTACHED TO HARDWOOD STAKES WITH HARDWOOD LATHS AND SECURED WITH FIVE 1-1/2" STAPLES. HARDWOOD STAKES SHALL BE 6' ON CENTER. THE BOTTOM 12" OF FABRIC SHALL BE LEFT UNSECURED TO ALLOW FOR ENTRENCHMENT.
2. A 6" DEEP TRENCH ALONG PROPOSED FENCE LINE SHALL BE CREATED. DRIVE THE STAKES INTO THE TRENCH 8-12" OR UNTIL SECURE. BE SURE TO STRETCH FABRIC TAUT WHEN DRIVING STAKES. STAKES MUST BE INSTALLED ON THE DOWNHILL OR DOWNSTREAM SIDE OF FENCE. DRAPE LOOSE END OF GEOTEXTILE INTO TRENCH, THEN BACKFILL AND COMPACT SOIL ON BOTH SIDES.

MAINTENANCE:

1. INSPECT WITHIN 24 HOURS OF A RAIN EVENT (0.5" RAINFALL) AND AT LEAST ONE EVERY SEVEN CALENDAR DAYS
2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
   NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED IN THIS DETAIL AND MANUFACTURER'S SPECIFICATIONS.
3. REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ONE-THIRD TO ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT.
4. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.



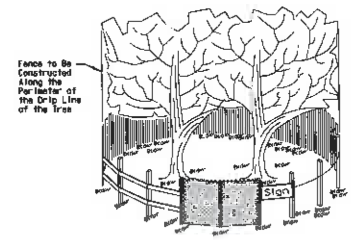
CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)

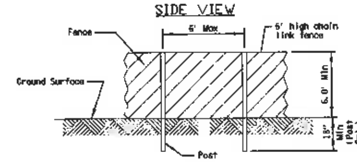
TREE PRESERVATION PROTECTION

MATERIALS
1. STANDARD STEEL POSTS OR WOOD POSTS SHALL HAVE A MINIMUM CROSS SECTIONAL AREA OF 3.0 SQ. IN.
2. 40" HIGH SNOW FENCE OR 40" HIGH PLASTIC WEB FENCING SHALL BE USED.
3. AS NECESSARY TO INDICATE TREE PRESERVATION AREAS, SIGNAGE INDICATING "TREE PRESERVATION AREA, DO NOT ENTER." SHALL BE PLACED AS NOTED IN THE DETAIL BELOW.

INSTALLATION
1. PLACE BARRIERS AROUND PROTECTED AND PRESERVED AREAS TO PREVENT THE APPROACH OF EQUIPMENT AT THE DRIP LINE OF TREES TO BE RETAINED.
2. NO TREE ROOTS SHALL BE CUT INSIDE THE TREE DRIP LINE.
3. DO NOT PLACE EQUIPMENT, CONSTRUCTION MATERIALS, TOPSOIL, OR FILL DIRT WITHIN THE LIMIT OF THE DRIP LINE OF THE TREES TO BE SAVED.
4. TREE PROTECTION BARRIERS SHALL BE REMOVED DURING FINAL SITE CLEANUP.

SPECIAL CONSIDERATIONS
1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO IMPLEMENTING CONSTRUCTION ACTIVITIES.
2. NO TREE CUTTING AND/OR PRUNING SHALL BE ALLOWED UNLESS ABSOLUTELY NECESSARY. ANY NECESSARY PRUNING SHALL BE IN ACCORDANCE WITH ANSI A300 STANDARDS.

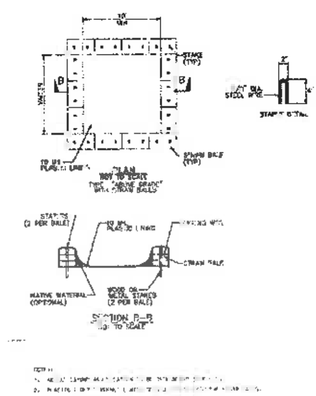




POST AND FENCE DETAIL

MAINTENANCE
1. TREE PROTECTION FENCING SHALL BE CONTINUALLY MONITORED AND ANY NECESSARY MAINTENANCE REPAIRS SHALL BE MADE IMMEDIATELY.

CONCRETE WASHOUT



US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FELL, PE	ISSUE DATE: JUNE 2016
DRAWN BY: EDT	SOLICITATION NO.: W912P6-XX-X-XXXX
CHECKED BY: JGS	CONTRACT NO.: W912P6-XX-X-XXXX
SUBMITTED BY: THOMAS T. BURKE, PE	PROJECT CODE: %UOPX1%
SIZE: ANSI D	FILE NAME: N:\INDIANA\...

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

9575 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

EROSION CONTROL NOTES AND DETAILS

SHEET ID
C-506
SHEET 44 OF 53

100%

MECHANICAL/ELECTRICAL GENERAL NOTES

1. THE TOWNSHIP SHALL BE NOTIFIED IN WRITING AT LEAST (3) FULL BUSINESS DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. UTILITIES EXIST IN THE AREA WHERE WORK IS PROPOSED. ACTUAL DEPTH OF UTILITIES ARE UNKNOWN. SHOULD ANY GIVEN UTILITY INTERFERE WITH THE PROPOSED WORK, PIPE ROUTING, ETC., THE CONTRACTOR SHALL, AT NO EXTRA COST TO THE TOWNSHIP, RESOLVE ANY AND ALL INTERFERENCE PROBLEMS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORK AS REQUIRED.
3. ALL UTILITY COMPANIES SHALL BE CONTACTED AND THEIR FACILITIES SHALL BE LOCATED PRIOR TO ANY WORK IN ANY EASEMENT, RIGHT-OF-WAY, OR SUSPECTED UTILITY LOCATION.
4. BEFORE BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LINE AND GRADES SHOWN ON THE CONTRACT DRAWINGS. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY REPORT SAME TO THE TOWNSHIP PRIOR TO PERFORMING WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORK AS REQUIRED.
5. ALL ELEVATIONS SHOWN ON THE CONTRACT DRAWINGS ARE BASED ON ESTABLISHED DATUM AT EACH SITE UNLESS OTHERWISE SPECIFIED.
6. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS, WHICH ARE HEREBY MADE A PART HEREOF:
   - A. "STANDARD SPECIFICATIONS" AS PREPARED BY INDOT
   - B. TOWNSHIP AND CURRENT MUNICIPAL CODES
   - C. NATIONAL ELECTRIC CODE

   WHERE CONTRADICTIONS OCCUR BETWEEN THE ABOVE LISTED SPECIFICATION, CODES AND/OR CONTRACT DOCUMENTS, THE MORE STRINGENT SHALL APPLY.
7. THE CONTRACT DOCUMENTS ARE NOT INTENDED TO SHOW ALL DETAILS OF WORK TO BE PERFORMED OR EQUIPMENT TO BE SUPPLIED. THE INTENT OF THE CONTRACT DOCUMENTS IS TO ILLUSTRATE THE CONCEPTUAL DESIGN AND LAYOUT. THE CONTRACTOR SHALL BE KNOWLEDGEABLE AND REGULARLY ENGAGED IN THE TYPE OF WORK DESCRIBED BY THESE CONTRACT DOCUMENTS, AND SHALL BE RESPONSIBLE FOR UNDERSTANDING THEIR INTENT. ANY WORK TO BE PERFORMED OR ITEM OF EQUIPMENT TO BE SUPPLIED WHICH IS NOT SPECIFICALLY CALLED FOR BY THESE CONTRACT DOCUMENTS BUT WHICH IS NECESSARY TO PROVIDE A COMPLETE AND SUCCESSFUL WORKING SYSTEM SHALL BE INCLUDED IN THE CONTRACTOR'S SCOPE OF WORK AT NO ADDITIONAL COST TO THE TOWNSHIP.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL MATERIAL QUANTITIES AND TO APPRAISE HIMSELF/HERSELF OF ALL EXISTING CONDITIONS. THE CONTRACT PRICE SUBMITTED BY THE CONTRACTOR SHALL BE CONSIDERED AS THE TOTAL COST FOR THE COMPLETE PROJECT. NO CLAIMS FOR EXTRA WORK WILL BE RECOGNIZED DUE TO THE CONTRACTOR'S FAILURE TO UNDERSTAND THE SCOPE OF WORK.
9. APPROXIMATE 100 YEAR FLOOD ELEVATION, IF APPLICABLE, IN THE AREA OF CONCERN IS SHOWN ON THE SITE PLANS.
10. IT SHALL BE NECESSARY TO PERFORM WORK ADJACENT TO EXISTING UTILITIES. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR EXISTING UTILITIES IN CONFORMANCE WITH THE AFFECTED UTILITY COMPANY'S REQUIREMENTS AS MAY BE REQUIRED TO PERFORM THE WORK OF THIS CONTRACT.
11. THE WORK PERFORMED UNDER THIS CONTRACT SHALL IN NO WAY INTERFERE WITH THE NORMAL OPERATION OF ANY EXISTING UTILITY SERVICE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ITEMS OF EQUIPMENT REQUIRED TO MAINTAIN SUCH NORMAL OPERATION AT NO ADDITIONAL COST TO THE TOWNSHIP. THE COST ASSOCIATED FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE CONTRACT.
12. ORIENTATION OF PIPING, CONDUITS, EQUIPMENT, ETC. MAY VARY. CONTRACTOR TO COORDINATE SAME WITH THE TOWNSHIP.
13. ANY AND ALL DEWATERING REQUIRED TO KEEP EXCAVATIONS DRY AS WELL AS BRACING AND SHORING EXCAVATED WALLS DURING UTILITY OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. SOIL EROSION PROTECTION SHALL BE IN ACCORDANCE WITH IDEM AND INDOT STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. ALL DISTURBED AREAS SHALL BE FINE GRADED, TOP-SOIL RESTORED (MIN. 4 INCHES) AND SEEDING.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS AND METHODS AND TECHNIQUES OF CONSTRUCTION. THE TOWNSHIP'S OR ENGINEER'S REVIEW OF SAME DOES NOT RELIEVE CONTRACTOR OF THIS RESPONSIBILITY. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY AND JOB SITE SAFETY.
16. LIMITS OF CONSTRUCTION SHALL BE SUBJECT TO TOWNSHIP'S APPROVAL AND SHALL NOT IMPACT EXISTING ROADWAY PAVEMENT EXCEPT WHERE IMPROVEMENTS ARE SHOWN BY DRAWINGS. LIMITS OF CONSTRUCTION (OTHER THAN ACROSS ROADWAY PAVEMENT) SHALL BE FENCED OFF WITH 6' CHAIN LINK FENCE. SUBJECT TO THE TOWNSHIP'S APPROVAL.
17. ANY AND ALL BY-PASS PUMPING AS MAY BE REQUIRED FOR CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND MATERIALS PROVIDED SHALL COMPLY WITH THE CONTRACT SPECIFICATIONS.
19. THE CONTRACTOR SHALL COORDINATE WITH THE TOWNSHIP AS REQUIRED PRIOR TO PERFORMING ANY WORK RELATED TO THIS CONTRACT.
20. ALL WATER REQUIRED BY THE CONTRACTOR FOR THE PROJECT CONSTRUCTION, FILLING, TESTING AND LANDSCAPING SHALL BE COORDINATED WITH THE TOWNSHIP. WATER USAGE AND METERING EQUIPMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

SHOP DRAWING REVIEW NOTES

1. THE CONTRACTOR SHALL SUBMIT FOR REVIEW DIMENSIONED OUTLINE SHOP DRAWINGS SHOWING THE GENERAL ARRANGEMENT OF THE EQUIPMENT TO BE FURNISHED, AND ITEMS TO BE INSTALLED. AS A MINIMUM FOUR COPIES OF ALL SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW.
2. BEFORE PROCEEDING WITH MANUFACTURE OF THE EQUIPMENT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW GENERAL ASSEMBLY SHOP DRAWINGS, SUBASSEMBLY SHOP DRAWINGS, DETAIL SHOP DRAWINGS, CALCULATIONS, DESIGN DATA, CATALOG CUTS AND SIMILAR ENGINEERING DOCUMENTS REQUIRED TO DEMONSTRATE FULLY THAT ALL PARTS WILL CONFORM TO THE PROVISIONS AND INTENT OF THE DRAWINGS AND SPECIFICATIONS AND TO THE REQUIREMENTS OF THEIR INSTALLATION, OPERATION, AND MAINTENANCE. THESE SHOP DRAWINGS SHALL SHOW ALL NECESSARY DIMENSIONS AND FABRICATION DETAILS, INCLUDING THE DESIGN OF WELDED AND BOLTED JOINT CONNECTIONS, TOLERANCES ON FITS AND CLEARANCES, AND ALL FIELD JOINTS AND SUBASSEMBLIES IN WHICH THE CONTRACTOR PROPOSES TO SHIP THE EQUIPMENT. DESIGN CRITERIA, CALCULATIONS, AND DETAILED SPECIFICATIONS, SHALL BE SUBMITTED FOR THE DESIGN OF ALL MAJOR COMPONENTS AND FOR OTHER FEATURES OR DETAILS WHEN REQUESTED BY THE TOWNSHIP.
3. ALL SUBMITTALS BY THE CONTRACTOR SHALL BE CERTIFIED BY THE RESPECTIVE EQUIPMENT MANUFACTURER.
4. THE CONTRACTOR SHALL SUBMIT COMPLETE FULL-LINE WIRING DIAGRAMS COVERING ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF SWITCH DEVELOPMENTS FOR ALL INSTRUMENT AND CONTROL SWITCHES AND INTERNAL CONNECTION DIAGRAMS FOR ALL INSTRUMENTS, RELAYS, REGULATORS, ETC.
5. SHOP DRAWINGS SHALL INCLUDE ELECTRICAL DEVICES, ACCESSORIES AND WIRING FURNISHED AS COMPONENT PARTS OF MECHANICAL EQUIPMENT AND SHALL SHOW ARRANGEMENT AND DIMENSIONS.
6. THE CONTRACTOR SHALL PREPARE AND SUBMIT SHOP DRAWINGS FOR ALL WORK AREAS, INDICATING SOLUTIONS TO SPACE PROBLEMS AND COORDINATION WITH REQUIREMENTS OF EXISTING CONDITIONS.
7. PRIOR TO FINAL INSPECTION PROVIDE THREE DUPLICATE LOOSE LEAF THREE RING BOUND COPIES AND ONE PDF COPY OF OPERATIONS AND MAINTENANCE MANUALS IN DURABLE COVERS OF THE FOLLOWING ITEMS ORGANIZED AND TAB INDEXED IN ACCORDANCE WITH THE SPECIFICATIONS FORMAT AS FOLLOWS:
   - A. MAINTENANCE AND OPERATING INSTRUCTIONS AS PUBLISHED BY THE MATERIAL SUPPLIERS AND/OR EQUIPMENT MANUFACTURERS.
   - B. SPECIFIED EQUIPMENT GUARANTEES AND WARRANTIES.
   - C. EMERGENCY INSTRUCTIONS.
   - D. WIRING DIAGRAMS.
   - E. SHOP DRAWINGS AND PRODUCT DATA.
   - F. INSPECTION PROCEDURES AND SERVICE RECOMMENDATIONS.
   - G. ASSEMBLY DRAWINGS AND PARTS LISTS WITH IDENTIFICATION SYMBOLS OR PART NUMBERS FOR ALL REPLACEABLE PARTS AND ASSEMBLIES.
   - H. TEST REPORTS.

EXCAVATION AND BACKFILL NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO READ AND UNDERSTAND THE SOIL AND GROUNDWATER CONDITIONS AT THE SITE.
2. THE CONTRACTOR SHALL EXAMINE THE CONTRACT DRAWINGS THOROUGHLY PRIOR TO BEGINNING ANY EXCAVATION, AND SHALL NOTIFY THE TOWNSHIP'S REPRESENTATIVE AT ONCE OF ANY DISCREPANCIES.
3. ALL WORK AREAS SHALL BE PROPERLY DRAINED DURING CONSTRUCTION. FINAL GRADES SHALL BE PROTECTED AGAINST DAMAGE FROM EROSION, TRAFFIC, AND FROST.
4. THE EXCAVATION FOR STRUCTURE AND/OR PIPE INSTALLATION SHALL BE KEPT DRY AT ALL TIMES DURING STRUCTURE/PIPE PLACEMENT. APPROPRIATE FACILITIES TO MAINTAIN THE DRY EXCAVATIONS/TRENCHES SHALL BE PROVIDED BY THE CONTRACTOR AND THE COST OF SUCH SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS TO WHICH THEY PERTAIN.
5. DETAILED DRAWINGS FOR ANY SHEETING AND BRACING SHALL BE PROVIDED FOR REVIEW TO THE TOWNSHIP'S REPRESENTATIVE PRIOR TO IMPLEMENTATION OF THE METHOD. A TRENCH BOX SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES, AND BE UTILIZED IN ACCORDANCE WITH OSHA STANDARDS.
6. SUITABLE EXCAVATED MATERIALS SUBJECT TO THE REVIEW OF THE TOWNSHIP'S REPRESENTATIVE MAY BE USED TO BACKFILL THE EXCAVATED AREAS OF THE SITE UNLESS SHOWN OTHERWISE.
7. NO UNDERGROUND WORK SHALL BE COVERED UNTIL IT HAS BEEN INSPECTED BY THE TOWNSHIP OR ENGINEER.
8. TRENCH BACKFILL SHALL BE PROVIDED FOR THE FULL DEPTH ABOVE PIPELINES UNDER PROPOSED OR EXISTING PAVEMENTS, UTILITIES, DRIVEWAYS, AND SIDEWALKS. THE TRENCH BACKFILL SHALL CONSIST OF A GRANULAR MATERIAL MEETING INDOT CRUSHED STONE NO. 53 GRADATION SPECIFICATIONS. THE TRENCH BACKFILL SHALL BE COMPACTED IN ACCORDANCE WITH INDOT STANDARD SPECIFICATIONS AND SHALL EXTEND A MINIMUM OF TWO FEET ON EITHER SIDE OF THE PIPE CENTERLINE, OR AS OTHERWISE SHOWN OR SPECIFIED HEREIN.
9. BACKFILL IN PIPE TRENCHES IN OPEN AREAS AND LANDSCAPED AREAS SHALL CONSIST OF GRADE 8 FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL; THEN SUITABLE EXCAVATED MATERIALS PLACED IN LIFTS AND COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DENSITY OBTAINABLE PER ASTM D 1557 FOR FINAL BACKFILL.
10. THE CONTRACTOR SHALL REMOVE ALL EXCESS UTILITY SPOIL. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
11. ALL REMOVAL OR EXCAVATION ITEMS BEING DISPOSED OF AT AN UNCONTAMINATED SOIL FILL OPERATION OR CLEAN CONSTRUCTION AND DEMOLITION DEBRIS (CCDD) FILL SITE SHALL MEET THE REQUIREMENTS OF PUBLIC ACT 96-1416. ALL COSTS ASSOCIATED WITH MEETING THESE REQUIREMENTS SHALL BE INCLUDED IN THE UNIT PRICE COST FOR THE ASSOCIATED REMOVAL OR EXCAVATION ITEMS IN THE CONTRACT. THESE COSTS SHALL INCLUDE BUT ARE NOT LIMITED TO ALL REQUIRED TESTING, LAB ANALYSIS, CERTIFICATION BY A LICENSED PROFESSIONAL ENGINEER, AND STATE OR LOCAL TIPPING FEES. THE FORMS SIGNED OFF BY THE PROFESSIONAL ENGINEER TO BE PROVIDED BY THE CONTRACTOR.
12. NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT. IT IS THE RESPONSIBLITY OF THE CONTRACTOR TO COVER OPEN EXCAVATIONS WITH STEEL SHEET PLATES. THE COST OF THIS PROCEDURE SHALL BE INCIDENTIAL TO THE WORK IN WHICH IT PERTAINS.

RECORD DRAWINGS & UTILITY NOTES

1. CERTAIN INFORMATION SHOWN ON THESE DRAWINGS HAS BEEN OBTAINED FROM DRAWINGS OF RECORD. CONTRACTOR SHALL VERIFY SUCH INFORMATION PRIOR TO ACTUAL START OF WORK. WHERE DISCREPANCIES ARE DISCOVERED THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE TOWNSHIP'S REPRESENTATIVE. FAILURE BY THE CONTRACTOR TO IMMEDIATELY NOTIFY THE TOWNSHIP'S REPRESENTATIVE OF SUCH DISCREPANCIES SHALL RESULT IN THE CONTRACTOR BEARING THE FULL BURDEN OF ALL RISKS/COSTS ATTRIBUTED TO THE DISCOVERED DISCREPANCY.
2. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHT-OF-WAYS ARE SHOWN ON THE DRAWINGS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS.
3. THE EXISTING BURIED UTILITY LINES, PUBLIC AND PRIVATE, ARE SHOWN ON THE DRAWINGS ACCORDING TO INFORMATION AVAILABLE FROM RECORDS. THE LOCATION AND DEPTH OF EXISTING BURIED UTILITY LINES SHOWN ON THE DRAWINGS IS THEREFORE APPROXIMATE AND MAY VARY FROM FIELD CONDITIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION AND DEPTH OF BURIED UTILITY LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES TO MARK THE LOCATION OF BURIED UTILITIES IN THE FIELD BEFORE BEGINNING EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY LINES AND SHALL REPAIR ANY UTILITY LINES DAMAGED AT HIS/HER OWN EXPENSE.
4. BEFORE INSTALLING ANY BURIED PIPE, THE CONTRACTOR SHALL CAREFULLY UNCOVER ALL EXISTING BURIED UTILITY LINES WHICH CROSS NEW CONSTRUCTION SO HE/SHE CAN DETERMINE THEIR EXACT LOCATION AND DEPTH. IF EXISTING BURIED UTILITY LINES ARE ENCOUNTERED THAT CONFLICT WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP'S REPRESENTATIVE SO THAT THE CONFLICT MAY BE RESOLVED.

SUBSURFACE OPERATION PLAN

1. BEFORE COMMENCING ACTIVITY AT THE SITE THE CONTRACTOR SHALL PREPARE AN "OPERATION PLAN" DRAWING SHOWING THE SEQUENCE OF OPERATION AND TIMING THAT IS PROPOSED FOR THE SUBSURFACE WORK. THIS PLAN DRAWING SHALL BE EXCLUSIVE OF ALL OTHER PLANS AND SCHEDULES REQUIRED UNDER THE CONTRACT. THE PLAN SHALL SHOW IN PLAN AND PROFILE SUPPLEMENTED BY SKETCHES, TEXT AND BAR DIAGRAMS THE EXTENT AND SEQUENCE OF WORK REQUIRED FOR THE SUBSURFACE CONSTRUCTION. THE PLAN SHALL SHOW ALL EXCAVATION, SHEETING, PROTECTION, DEWATERING PROCEDURES, BYPASS PUMPING, UTILITIES SUPPORT, DRAINS AND ALL OTHER FEATURES REQUIRED TO PERFORM THE SUBSURFACE OPERATION. THE PLAN SHALL BE SUBMITTED TO THE TOWNSHIPS REPRESENTATIVE FOR REVIEW. INSOFAR AS POSSIBLE ALL INFORMATION SHALL BE SHOWN ON THE PLAN FOR CONVENIENCE OF INTERPRETATION UNDER FIELD CONDITIONS. THE PLAN SHALL BE SEALED BY AN INDIANA REGISTERED STRUCTURAL ENGINEER.
2. ALL SHEETING/SHORING AND EARTH RETENTION/PROTECTION OF THE EXCAVATIONS, AROUND THE PROJECT WORK SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

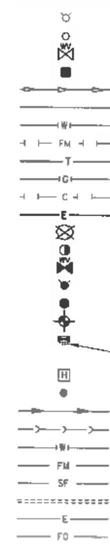
FINAL ACCEPTANCE AND INSPECTION

1. AN APPLICATION FOR AN ELECTRICAL PERMIT SHALL BE SUBMITTED. THE ELECTRICIAN IS TO SUBMIT 2 COPIES OF THE PLANS, A COPY OF THE ELECTRICIAN LICENSE, AND BE REGISTERED TO WORK IN CALUMET TOWNSHIP.
2. WHEN ALL THE WORK AS SHOWN ON THE DRAWINGS AND INCLUDED IN THE SPECIFICATIONS HAS BEEN COMPLETED AND THE EQUIPMENT HAS BEEN INSTALLED, TESTED, PLACED INTO OPERATION, AND SUBSEQUENTLY HAS SATISFACTORILY OPERATED FOR 14 DAYS, A THOROUGH INSPECTION OF THE EQUIPMENT WILL BE MADE BY THE TOWNSHIP IN THE COMPANY OF THE CONTRACTOR, AND IF THE WORK IS FOUND TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS, THE WORK WILL BE FORMALLY ACCEPTED AND THE CONTRACTOR SO NOTIFIED AS TO THE FINAL ACCEPTANCE OF THE WORK BY THE TOWNSHIP. NOTIFICATION OF FINAL ACCEPTANCE WILL BE IN WRITING.
3. SHOULD ANY WORK BE FOUND TO BE INADEQUATE, FAULTY, OR OTHERWISE NOT IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT SUCH WORK AT HIS/ HER OWN EXPENSE, PRIOR TO FINAL ACCEPTANCE.
4. UPON RECEIVING FINAL PAYMENT, THE PERIOD OF THE WARRANTY OF THE WORK SHALL BE ENFORCED AS STATED WITHIN THE TERMS OF THE CONTRACT BOND.
5. CONTRACTOR SHALL TEST EACH PUMP IN PLACE TO VERIFY PERFORMANCE WITH SPECIFIED CAPACITY.

LANDSCAPING NOTES

1. CONTRACTOR SHALL TAKE UPMOST CARE TO PROTECT TREES WITHIN WORK ZONES. NO TREE TRIMMING SHALL BE ALLOWED UNLESS AUTHORIZED BY THE TOWNSHIP.
2. ALL TREES ARE DESIGNATED TO BE SAVED UNLESS OTHERWISE NOTED ON THE PLANS.
3. ALL CLEARING AND REMOVAL OF BUSHES, HEDGES AND TREES UNDER 6" IN DIAMETER SHALL BE INCIDENTAL TO THE COST OF EARTH EXCAVATION.
4. EXISTING FIRE HYDRANTS SHALL NOT BE OPERATED WITHOUT PRIOR WRITTEN OR VERBAL APPROVAL BY THE TOWNSHIP.
5. THE CONTRACTOR SHALL ADHERE TO LIMITS OF RESTORATION SHOWN. AREAS OUTSIDE THESE LIMITS THAT ARE DAMAGED OR DISTURBED BY THE CONTRACTOR, SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

MECHANICAL/ELECTRICAL LEGEND



EXISTING FIRE HYDRANT
EXISTING MANHOLE
EXISTING VALVE BOX
EXISTING STORM INLET
EXISTING STORM SEWER
EXISTING SANITARY SEWER
EXISTING WATERMAIN
EXISTING FORCEMAIN
EXISTING TELEPHONE LINE
EXISTING GAS LINE
EXISTING COMMUNICATION LINE
EXISTING ELECTRICAL LINE
EXISTING TREE TO BE REMOVED
PROPOSED VALVE BOX
PROPOSED GATE VALVE IN VAULT
PROPOSED FIRE HYDRANT
PROPOSED MANHOLE
PROPOSED SOIL BORING
PUMP CONTROLLER ENCLOSURE
DOOR SWING
POLYMER CONCRETE HANDHOLE
BOLLARD
PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
PROPOSED WATERMAIN
PROPOSED FORCEMAIN
PROPOSED SILT FENCE
PROPOSED TOE DRAIN
PROPOSED ELECTRIC LINE
PROPOSED FIBER OPTIC LINE

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. FELL, PE	ISSUE DATE: JUNE 2016
DRAWN BY: DRK/ATK	SOLICITATION NO.: W912P6-XX-X-XXXX
CHECKED BY:	CONTRACT NO.: W912P6-XX-X-XXXX
SUBMITTED BY: THOMAS T. BURKE, PE	PROJECT CODE: XX/OPXX%
SIZE: ANSI D	FILE NAME: [illegible]

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

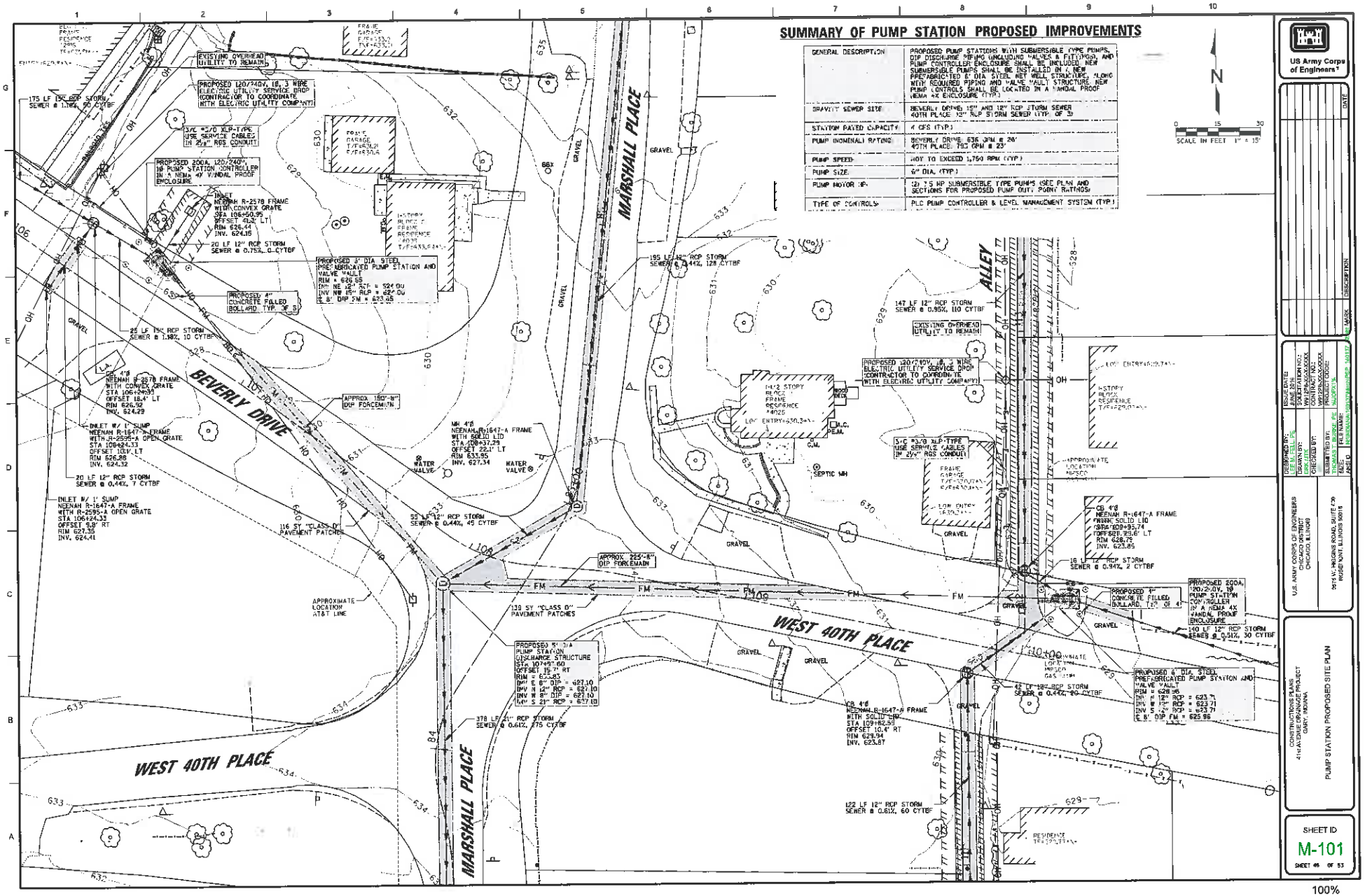
9575 W. HIGGINS ROAD, SUITE 670
ROSEMONT, ILLINOIS 60018

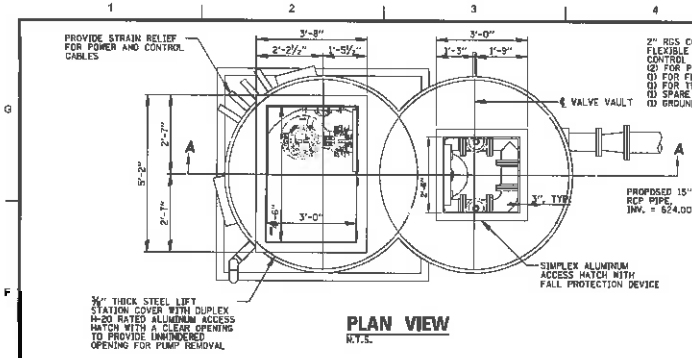
CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

GENERAL NOTES AND LEGEND

SHEET ID
M-001
SHEET 46 OF 53

100%


SUMMARY OF PUMP STATION PROPOSED IMPROVEMENTS
GENERAL DESCRIPTION
PROPOSED PUMP STATIONS WITH SUBMERSIBLE TYPE PUMPS, DIP DISCHARGE PIPING (INCLUDING VALVES & FITTINGS), AND PUMP CONTROLLER ENCLOSURE SHALL BE INCLUDED. NEW SUBMERSIBLE PUMPS SHALL BE INSTALLED IN A NEW PREFABRICATED 8' DIA STEEL WET WELL STRUCTURE. ALONG WITH REQUIRED PIPING AND VALVE VAULT STRUCTURE. NEW PUMP CONTROLS SHALL BE LOCATED IN A VANDAL PROOF (NEMA 4X ENCLOSURE (TYP.)
GRAVITY SEWER SIZE
BEVERLY DRIVE: 15" AND 12" RCP STORM SEWER
40TH PLACE: 12" RCP STORM SEWER (TYP. OF 3)
STATION RATED CAPACITY
4 CFS (TYP.)
PUMP (NOMINAL) RATING
BEVERLY DRIVE: 636 GPM @ 26'
40TH PLACE: 792 GPM @ 23'
PUMP SPEED
NOT TO EXCEED 1,750 RPM (TYP.)
PUMP SIZE
6" DIA. (TYP.)
PUMP MOTOR HP
(2) 7.5 HP SUBMERSIBLE TYPE PUMPS (SEE PLAN AND SECTIONS FOR PROPOSED PUMP OUT. POINT RATINGS)
TYPE OF CONTROLS
PLC PUMP CONTROLLER & LEVEL MANAGEMENT SYSTEM (TYP.)
N
SCALE IN FEET 1" = 15'
US Army Corps of Engineers®
BEVERLY DRIVE
MARSHALL PLACE
WEST 40TH PLACE
ALLEY
GRAVEL
EXISTING OVERHEAD UTILITY TO REMAIN
PROPOSED 120/240V, 1Ø, 3 WIRE ELECTRIC UTILITY SERVICE DROP (CONTRACTOR TO COORDINATE WITH ELECTRIC UTILITY COMPANY)
PROPOSED 200A, 120/240V, 1Ø PUMP STATION CONTROLLER IN A NEMA 4X VANDAL PROOF ENCLOSURE
PROPOSED 8' DIA. STEEL PREFABRICATED PUMP STATION AND VALVE VAULT
PROPOSED 4" CONCRETE FILLED BOLLARD, TYP. OF 4
PROPOSED 5' DIA PUMP STATION DISCHARGE STRUCTURE
APPROX. 160'-8" DIP FORCEMAIN
APPROX. 225'-8" DIP FORCEMAIN
116 SY "CLASS D" PAVEMENT PATCHES
139 SY "CLASS D" PAVEMENT PATCHES
APPROXIMATE LOCATION AT&T LINE
WATER VALVE
SEPTIC MH
U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS
CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA
PUMP STATION PROPOSED SITE PLAN
SHEET ID
M-101
SHEET 46 OF 53
100%



PLAN VIEW
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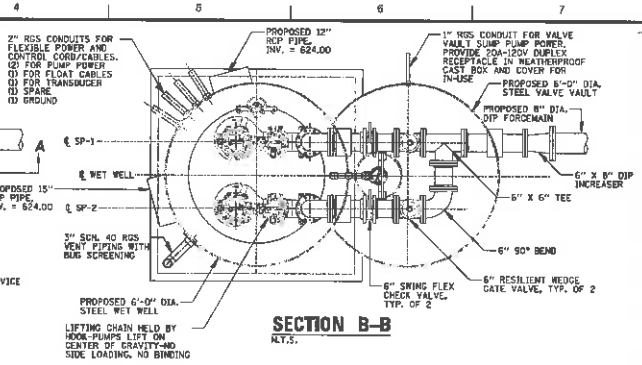
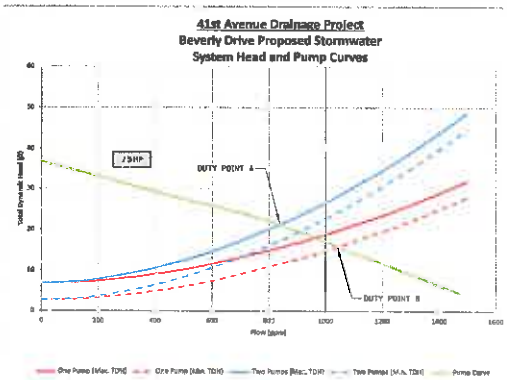


SECTION B–B
N.T.S.



OPERATING CONDITIONS:
DUTY POINT A: 836 GPM @ 26 FT. TDH (TWO PUMPS OPERATING)
DUTY POINT B: 1040 GPM @ 16 FT. TDH (ONE PUMP OPERATING)

PROPOSED PUMP PERFORMANCE CURVE

SYSTEM OPERATION

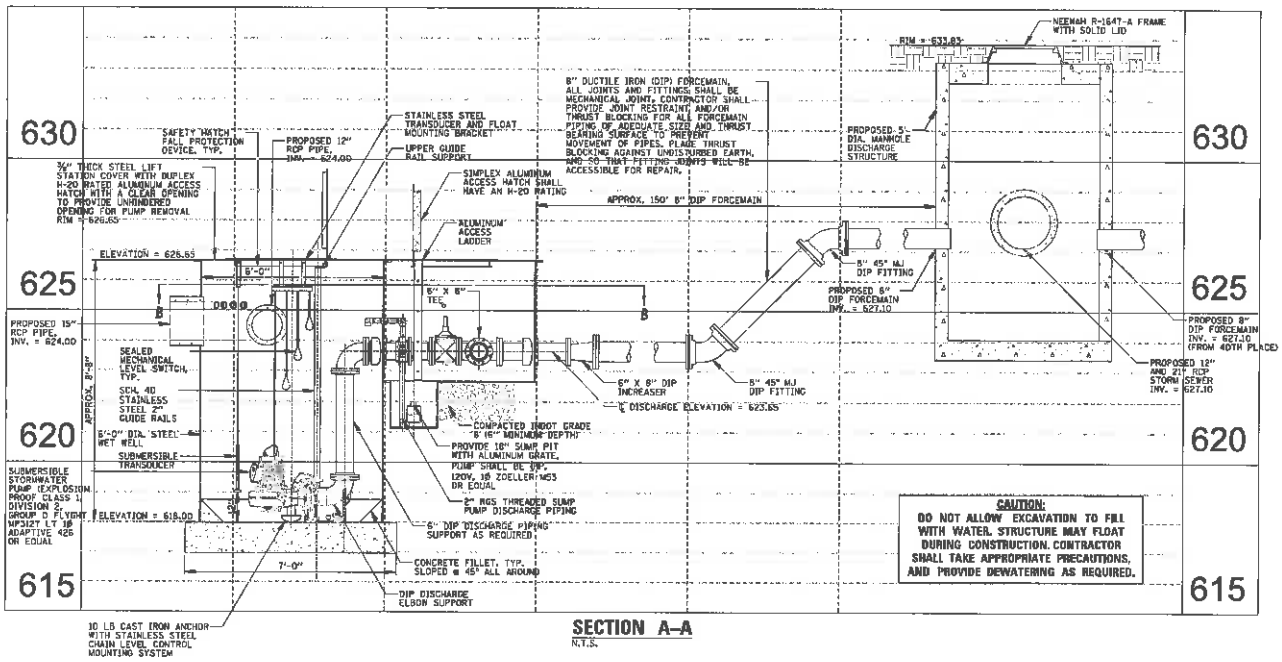
SYSTEM OPERATION SHALL BE BY MEANS OF A DUPLEX PUMP CONTROLLER, WITH AN AUTOMATIC ALTERNATOR USED TO AUTOMATICALLY ALTERNATE THE PROPOSED "LEAD" AND "LAG" PUMPS. AS WATER LEVEL RISES WITHIN THE WET WELL STRUCTURE, THE LOWEST FLOAT SWITCH SHALL BE ENERGIZED, AS THE LEVEL CONTINUES TO RISE THEN THE SECOND FLOAT SWITCH SHALL BE ENERGIZED AND ACTIVATE THE LEAD PUMP. ONCE THE WATER LEVEL LOWERS BACK DOWN TO THE FIRST FLOAT SWITCH THE LEAD PUMP SHALL BE DE-ENERGIZED. THE ALTERNATING RELAY SHALL SEND A SIGNAL TO THE CONTROLLER UPON STOPPING THE LEAD PUMP SO THAT THE LAG PUMP WILL ACTIVATE ON THE NEXT OPERATION. IF THE SUMP LEVEL CONTINUES TO RISE WITHIN THE WET WELL STRUCTURE WHEN THE LEAD PUMP IS OPERATING, REACHING THE THIRD FLOAT SWITCH, THEN THE FLOAT SWITCH SHALL ENERGIZE AND START THE LAG PUMP. BOTH LEAD AND LAG PUMPS SHALL OPERATE TOGETHER UNTIL WATER LEVEL REACHES THE FIRST FLOAT SWITCH AND DE-ENERGIZES BOTH PUMPS. IF LEAD PUMP SHOULD FAIL FOR ANY REASON, THEN THE LAG PUMP SHALL BE ENERGIZED AND AN ALARM SHALL BE SENT TO THE OWNER, INDICATING PUMP FAILURE.

PUMP & ALARM ACTIVATION SCHEDULE

ELEVATION	ALARM DESCRIPTION	LEVEL MANAGEMENT
620.00	ALL PUMPS OFF	TRANSDUCER AND FLOAT SETTING
623.00	LEAD PUMP ON	TRANSDUCER AND FLOAT SETTING
624.00	LAG PUMP ON	TRANSDUCER AND FLOAT SETTING
625.00	HIGH FLOAT ALARM	TRANSDUCER AND FLOAT SETTING

PUMP STATION NOTES

1. ANY AND ALL DEWATERING REQUIRED DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. ORIENTATION OF PIPING, CONDUITS, EQUIPMENT ETC. MAY VARY. CONTRACTOR TO COORDINATE WITH EQUIPMENT LOCATIONS SHOWN ON OTHER SHEETS.
3. DIMENSIONING SHOWN ON THIS DRAWING IS NOT TO SCALE (NTS). DO NOT SCALE THIS DRAWING.
4. LOCATION ORIENTATION AND NUMBER OF EMBEDDED AND/OR BURIED CONDUITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. MINIMUM NUMBER OF CONDUITS ARE SHOWN ON CONDUIT & GROUNDING PLAN. CABLES INTEGRALLY WIRED AND PROVIDED WITH PUMPS AND FLOATS TO BE OF SUFFICIENT LENGTH TO CONNECT TO CONTROLLER CABLE JUNCTION BOX WITHOUT SPLICING, UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
5. CONTRACTOR TO COORDINATE POSITION AND SIZE OF PUMP STATION HATCHES TO ALLOW FOR PUMP AND/OR EQUIPMENT IN WET WELL TO REMOVAL.
6. USE OF PUMPS SUPPLIED UNDER THIS CONTRACT FOR THE PURPOSE OF DEWATERING DURING CONSTRUCTION WILL NOT BE PERMITTED.
7. STEEL WET WELL STRUCTURES SHALL BE REINFORCED TO MEET H20 TRUCK LOADING REQUIREMENTS. AT A MINIMUM CONTRACTOR SHALL PROVIDE STRUCTURE DETAILS, CALCULATIONS AND SHOP DRAWINGS STAMPED BY AN INDIANA LICENSED STRUCTURAL ENGINEER.
8. PROVIDE AUTOMATIC ALTERNATOR TO ALTERNATE PUMPS AFTER EACH TIME THEY ARE OPERATED.
9. HATCHES SHALL BE ALUMINUM WITH 316 STAINLESS STEEL TRIM. LOAD RATING SHALL BE H-20. CONTRACTOR TO COORDINATE HATCH SIZE AND ORIENTATION AS REQUIRED.
10. PROVIDE SEPARATE CONDUITS FOR PUMP POWER CABLE(S), CONTROL CABLE(S), AND FLOAT CONTROL CABLE(S) (SEE CONDUIT AND GROUNDING PLAN FOR CONDUIT SIZES, QUANTITIES AND ORIENTATION).
11. CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT ORIENTATION.
12. PROVIDE 10 LB. PLASTIC COATED ANCHOR FOR FLOAT SWITCHES AND TRANSDUCER TO PREVENT MOVEMENT (SEE MECHANICAL FLOAT INSTALLATION DETAIL).
13. ALL FASTENERS, MOUNTING HARDWARE AND LIFT CHAINS SHALL BE STAINLESS STEEL.
14. SEE OPERATION OF SYSTEM FOR DETAILS OF PUMP STATION OPERATION. REFER TO EQUIPMENT SPECIFICATION SHEET.
15. THE FLOAT SWITCH SYSTEM (INCLUDING FLOATS & RELAYS) SHALL OPERATE AS A BACK-UP SYSTEM. A PRIMARY LEVEL MANAGEMENT SYSTEM SHALL BE PROVIDED AND SHALL CONSIST OF A PRESSURE TRANSDUCER AND CONTROLLER.
16. PROVIDE CONDENSATION HEATER AND THERMOSWITCH FOR CONTROLLER. HEATER SIZE TO BE COORDINATED BY CONTRACTOR FOR THE SIZE OF THE ENCLOSURE.
17. PROVIDE A DUAL 20 AMP GFCI CONVENIENCE OUTLET LOCATED WITHIN THE PUMP CONTROLLER.
18. HATCHES SHALL BE GASKETED, ODOR RESISTANT AND LOCKABLE. ALL LOCKS SHALL BE KEYED TO MATCH OWNER'S REQUIREMENTS. HATCHES SHALL HAVE RECESSED STAPLE FOR PADLOCK AND CAST ALUMINUM DROP HANDLE.
19. SAFETY GRATE SHALL SPAN THE ENTIRE OPENING OF EACH HATCH. A SINGLE SAFETY GRATE SPANNING ALL HATCHES WILL NOT BE ACCEPTABLE. GRATE SHALL BE CAPABLE OF SUPPORTING 300 PSF.
20. PRIOR TO FABRICATION, CONTRACTOR SHALL VERIFY GRADE ELEVATIONS AND INVERTS OF EXISTING SEWERS AND STRUCTURES.
21. BACKFILL SHALL BE GRANULAR STRUCTURE BACKFILL PLACED IN LOOSE LIFT THICKNESSES NOT EXCEEDING 8 IN. AND COMPACTED IN ACCORDANCE TO THE CONTRACT SPECIFICATIONS.



CAUTION:
DO NOT ALLOW EXCAVATION TO FILL WITH WATER. STRUCTURE MAY FLOAT DURING CONSTRUCTION. CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS, AND PROVIDE DEWATERING AS REQUIRED.

SECTION A–A
N.T.S.

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/31/2014
SOLICITATION NO.: W912DQ-XX-X-XXXX
CONTRACT NO.: W912DQ-XX-C-XXXX
PROJECT CODE:

DESIGNED BY: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
SUBMITTED BY: [illegible]
APPROVED BY: [illegible]

U.S. ARMY CORPS OF ENGINEERS
DISTRICT, CHICAGO
CHICAGO, ILLINOIS

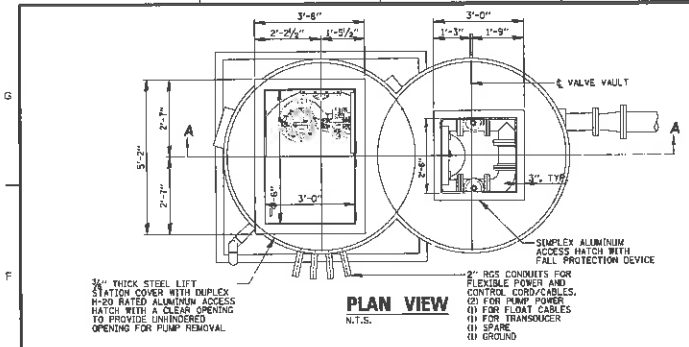
9979 W. HIGGINS ROAD, SUITE 400
ROSEMONT, IL 60018-5018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

BEVERLY DRIVE PUMP STATION PLAN AND PROFILE

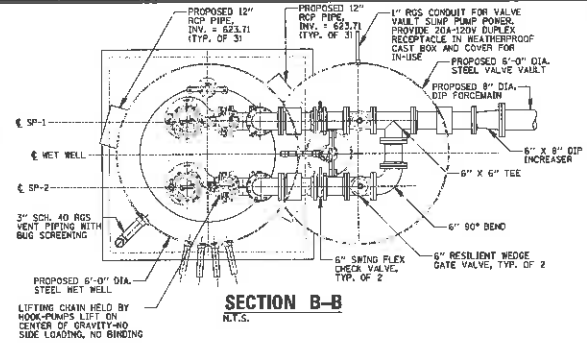
SHEET ID
M-102
SHEET 47 OF 53

100%



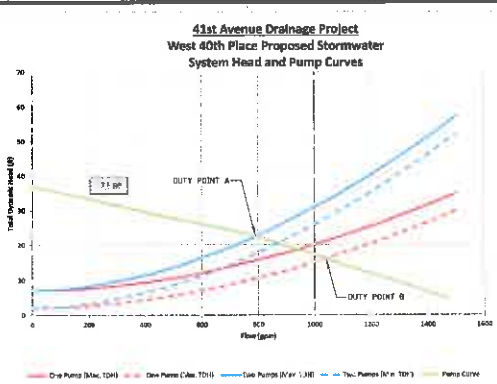
PLAN VIEW

N.T.S.



SECTION B–B

N.T.S.



OPERATING CONDITIONS:
DUTY POINT A: 793 GPM @ 23 FT. TDH (TWO PUMPS OPERATING)
DUTY POINT B: 1040 GPM @ 16 FT. TDH (ONE PUMP OPERATING)

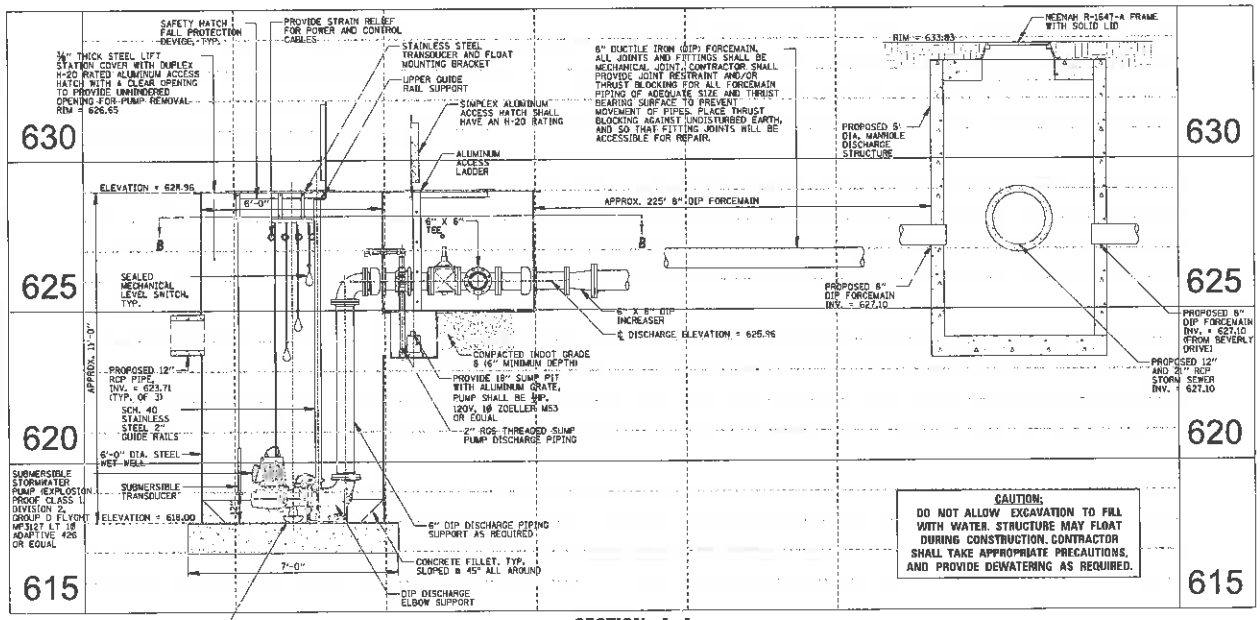
PROPOSED PUMP PERFORMANCE CURVE

SYSTEM OPERATION

SYSTEM OPERATION SHALL BE BY MEANS OF A DUPLEX PUMP CONTROLLER, WITH AN AUTOMATIC ALTERNATOR USED TO AUTOMATICALLY ALTERNATE THE PROPOSED "LEAD" AND "LAG" PUMPS. AS WATER LEVEL RISES WITHIN THE WET WELL STRUCTURE, THE LOWEST FLOAT SWITCH SHALL BE ENERGIZED, AS THE LEVEL CONTINUES TO RISE THEN THE SECOND FLOAT SWITCH SHALL BE ENERGIZED AND ACTIVATE THE LEAD PUMP. ONCE THE WATER LEVEL LOWERS BACK DOWN TO THE FIRST FLOAT SWITCH THE LEAD PUMP SHALL BE DE-ENERGIZED. THE ALTERNATING RELAY SHALL SEND A SIGNAL TO THE CONTROLLER UPON STOPPING THE LEAD PUMP SO THAT THE LAG PUMP WILL ACTIVATE ON THE NEXT OPERATION. IF THE SUMP LEVEL CONTINUES TO RISE WITHIN THE WET WELL STRUCTURE WHEN THE LEAD PUMP IS OPERATING, REACHING THE THIRD FLOAT SWITCH, THEN THE FLOAT SWITCH SHALL ENERGIZE AND START THE LAG PUMP. BOTH LEAD AND LAG PUMPS SHALL OPERATE TOGETHER UNTIL WATER LEVEL REACHES THE FIRST FLOAT SWITCH AND DE-ENERGIZES BOTH PUMPS. IF LEAD PUMP SHOULD FAIL FOR ANY REASON, THEN THE LAG PUMP SHALL BE ENERGIZED AND AN ALARM SHALL BE SENT TO THE OWNER, INDICATING PUMP FAILURE.

PUMP & ALARM ACTIVATION SCHEDULE

ELEVATION	ALARM DESCRIPTION	LEVEL MANAGEMENT
620.00	ALL PUMPS OFF	TRANSDUCER AND FLOAT SETTING
624.00	LEAD PUMP ON	TRANSDUCER AND FLOAT SETTING
625.00	LAG PUMP ON	TRANSDUCER AND FLOAT SETTING
626.50	HIGH FLOAT ALARM	TRANSDUCER AND FLOAT SETTING



CAUTION:
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SECTION A–A

N.T.S.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: JMS
DRAWN BY: PE
CHECKED BY: CJK
SUBMITTED BY: THOMAS J. BERGLUND
APPROVED BY: CASB

ISSUE DATE: 11/14/2014
SOLICITATION NO.: W912P5-XX-X-XXXX
CONTRACT NO.: W912P5-XX-C-XXXX
PROJECT CODE:

U.S. ARMY CORPS OF ENGINEERS CHICAGO DISTRICT CHICAGO, ILLINOIS

8675 W. HIGGINS ROAD, SUITE 400 ROSEMONT, ILLINOIS 60631

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

40TH PLACE PUMP STATION PLAN AND PROFILE

SHEET ID
M-103
SHEET 48 OF 53

100%

GROUNDING NOTES

1. FURNISH AND INSTALL A GROUND FIELD AS SHOWN. GROUNDING CONDUCTOR SHALL BE INSTALLED 1-FT. MINIMUM BELOW GROUND.
2. GROUND ALL EXPOSED METAL WORK SUCH AS HATCHES, METAL CABINETS AND EQUIPMENT FRAMES, ETC. CONNECTIONS TO HATCHES, AND OTHER METAL WORK SHALL BE FUSION WELDED. CONNECTIONS TO THE GALVANIZED EQUIPMENT AND TO EQUIPMENT WHICH MAY BE REMOVED FOR MAINTENANCE SHALL BE MADE WITH BOLTED CLAMP TYPE CONNECTIONS OF SOLID COPPER, WELDED TO THE GROUNDING CONNECTOR.
3. UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF SYSTEM GROUNDING CONDUCTOR SHALL BE NO. 6 AWG.
4. EACH CONDUIT RUN SHALL BE GROUNDED TO THE COMMON GROUNDING BUS IN THE PANEL WHERE IT ORIGINATES. THE MINIMUM SIZE OF GROUNDING CONDUCTOR SHALL BE PER NEC SECTION 250.122 OR AS OTHERWISE SHOWN ON THE DRAWINGS.
5. GROUNDING RODS SHALL BE COPPERWELD, MINIMUM 5/8-IN. DIAMETER X 10-FT. LONG. CABLE-TO-CABLE AND CABLE-TO-GROUND ROD CONNECTIONS SHALL BE MADE BY THE FUSION WELDING PROCESS.

ELECTRICAL NOTES

1. POWER/CONTROL CABLES INTEGRALLY WIRED AND PROVIDED WITH RESPECTIVE PUMPING UNITS, AND/OR FLOATS. CONTRACTOR TO COORDINATE. CABLE LENGTHS TO BE PROVIDED AS REQUIRED. CABLE LENGTHS SHALL BE CONTINUOUS AND UNSPLICED.
2. PROVIDE SEPARATE CONDUITS FOR CABLING AS NOTED.
3. UTILITY METER SHALL BE FURNISHED & INSTALLED BY NIPSCO. INSTALLATION SHALL BE PER NIPSCO REQUIREMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY/ALL NECESSARY COORDINATION FOR THE REQUIRED ELECTRICAL SERVICE.
5. EXACT LOCATION OF EMBEDDED AND/OR BURIED CONDUITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR SUBJECT TO THE REVIEW OF THE OWNER'S REPRESENTATIVE. ACTUAL NUMBER OF CONDUITS SHALL BE AS REQUIRED.
6. TRIP RATINGS SHOWN OR SPECIFIED ARE FOR MOTOR HORSEPOWERS ANTICIPATED. SELECTED EQUIPMENT HORSEPOWER MAY BE LARGER OR SMALLER THAN INDICATED. CONTRACTOR SHALL PROVIDE THE NECESSARY TRIP RATINGS AS REQUIRED BY N.E.C. FOR THE ACTUAL EQUIPMENT PROVIDED.
7. GROUND RODS SHALL BE USED FOR GROUNDING. MINIMUM SIZE SHALL BE 5/8 INCH DIA., 10 FEET LONG. INSTALLATION AND GROUND RESISTANCE SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND MEET OWNER APPROVAL. SEE GROUNDING NOTES FOR ADDITIONAL DETAILS.
8. UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, USE RIGID GALVANIZED STEEL (RGS) CONDUIT. ALL CONDUIT SHALL BE RIGIDLY SUPPORTED.
9. TIME DELAY RELAYS AND MOTOR STARTERS FOR EACH PUMP SHALL BE PROVIDED WITH A 10-60 SECOND ADJUSTABLE TIME DELAY RELAY. RELAYS SHALL BE ADJUSTABLE IN 5 SECOND INTERVALS.
10. THE CONTRACTOR SHALL FURNISH AND INSTALL COMPLETE ALL ELECTRICAL DEVICES, CONDUIT AND WIRING AND CONTROLS AS REQUIRED FOR THE UNATTENDED AND AUTOMATIC OPERATION OF THE PUMP STATION, AS SPECIFIED.
11. PROVIDE GFCI PROTECTION FOR ALL POWER RECEPTACLES.
12. THE ELECTRICAL DEVICES/COMPONENTS/CONTROLLER MUST BE LISTED FOR USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
13. RECORD DRAWINGS SHALL BE PROVIDED INCLUDING FIELD VERIFICATION BY THE CONTRACTOR.
14. INSTALLATION SHALL COMPLY WITH NATIONAL ELECTRICAL CODE REQUIREMENT FOR CLASS 1, DIVISION 2, GROUP D.

SIZE	QTY	TYPE	SERVICE (SEE DUCT/CONDUIT & GROUNDING PLAN AND RELATED NOTES)	IDENTIFIER
2"	1	RGS	POWER AND SENSORS TO SP-1	1
2"	1	RGS	POWER AND SENSORS TO SP-2	2
2"	1	RGS	FLOAT CABLES	3
2"	1	RGS	TRANSDUCER	4
2"	1	RGS	SPARE TO WET WELL (WITH PULL STRING FOR FUTURE USE)	5
1"	1	RGS	WET WELL EQUIPMENT GROUND (1/C #8 GROUND) (GROUND ONLY)	6
2"	1	RGS	SPARE (STUB OUT 5 FEET AND CAP)	7
1"	1	RGS	GROUND FIELD CONNECTION TO CABINET GROUND BUS (STUB OUT 1 FOOT)	8
2 1/2"	1	RGS	INCOMING POWER FROM NIPSCO 120/240V 1Ø UTILITY POLE (3/C #3/0)	9
1"	1	RGS	POWER TO RECEPTACLE FOR SUMP PUMP (3/C #12)	10

CONDUIT & GROUNDING PLAN

N.T.S.

NOTES:

1. SEE CONDUIT SCHEDULE FOR IDENTIFIERS. NOTE THAT REQUIRED SIZE OF CONDUIT IS FUNCTION OF CORD/CABLE SIZE OF SELECTED EQUIPMENT. CONDUIT MAY BE LARGER OR SMALLER THAN INDICATED BY THE SCHEDULE. CONTRACTOR TO COORDINATE.
2. SEE SITE PLAN FOR EQUIPMENT ORIENTATION AND ARRANGEMENT. CONTRACTOR TO COORDINATE.
3. THIS PLAN ILLUSTRATES A CONCEPTUAL CONDUIT LAYOUT. CONTRACTOR TO COORDINATE AS REQUIRED.
4. CONDUITS ROUTED TO THE WET WELL SHALL BE SLOPED TO DRAIN TO WET WELL.
5. CONNECT EQUIPMENT GROUND CONDUCTOR FROM PUMP CONTROLLER ENCLOSURE GROUND BUS VIA (6) TO WET WELL HATCHES AND GUIDE RAILS.

EQUIPMENT SCHEDULE

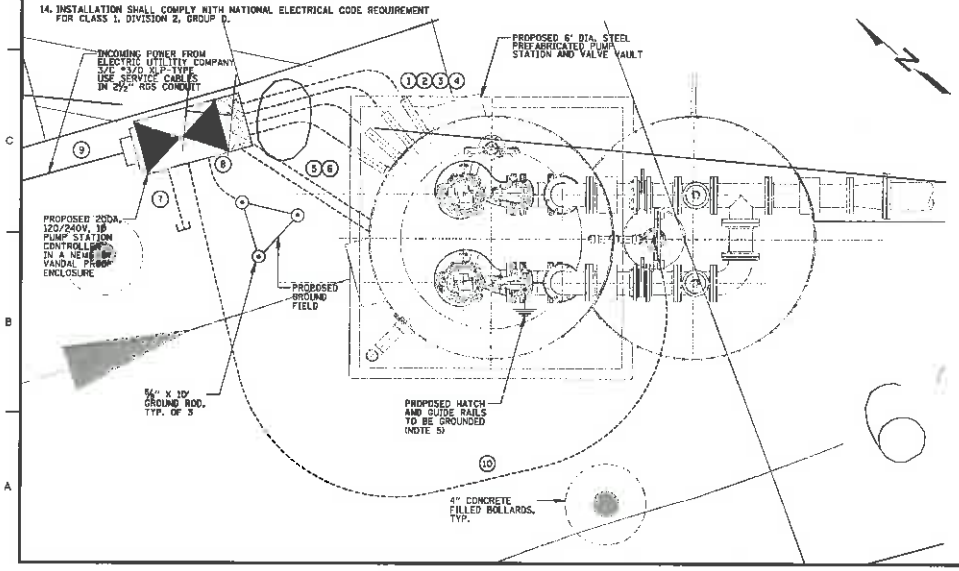
DESIGNATION	EQUIPMENT	UNIT SIZE &/ OR RATING	ELECTRICAL DATA		
			MOTOR HP	SUPPLY VOLTAGE/PHASE	RPM (NOT TO EXCEED)
MB	MAIN CIRCUIT BREAKER	200 AMP	N/A	240V; 1Ø	N/A
SP-1	SUBMERSIBLE PUMP	SEE SYSTEM HEAD CURVE AND SPECS	7.5 HP	240V; 1Ø	1750
SP-2	SUBMERSIBLE PUMP		7.5 HP	240V; 1Ø	1750
–	SUMP PUMP		1/3 HP	120V; 1Ø	N/A

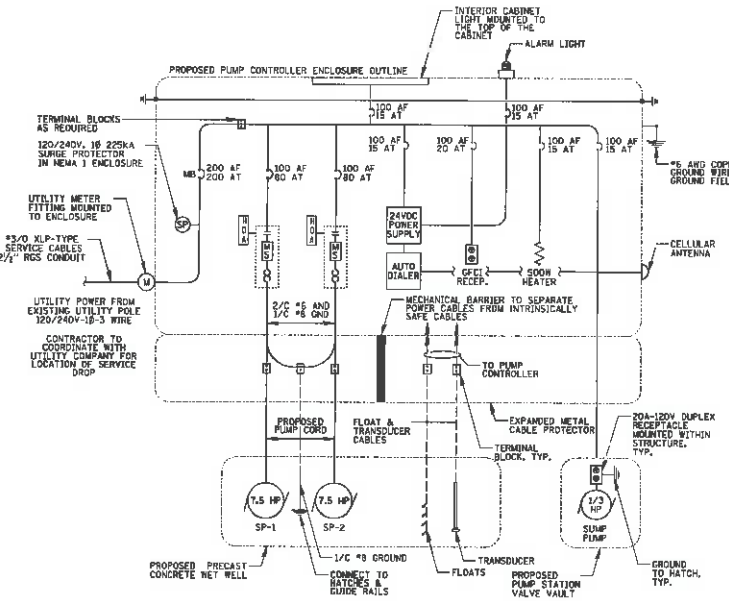
ELECTRICAL SYMBOLS

- (M) LOCAL UTILITY METER
- (MP) MOTOR W/ HP INDICATED
- (SP) SURGE PROTECTION
- (MS) MOTOR STARTER
- 100 (OR) M — 100 AF 15 AT: MOLDED CASE CIRCUIT BREAKER (UPPER NUMBER INDICATES FRAME SIZE) (LOWER NUMBER INDICATES TRIP SETTING) (M-INDICATES MOTOR CIRCUIT PROTECTED)
- TRANSFORMER (POWER)
- INDICATING LIGHT (WITH COLOR INDICATED)
- NORMALLY OPEN CONTACTOR
- NORMALLY CLOSED CONTACTOR
- FUSED DISCONNECT
- MECHANICAL INTERLOCK
- FUSE
- SWITCH
- DISCONNECT DEVICE
- THERMAL MAGNETIC OVERLOAD DEVICE
- GROUND

ELECTRICAL ABBREVIATIONS

FVNR - FULL VOLTAGE NON-REVERSING
SSRVMS - SOLID STATE REDUCED VOLTAGE MOTOR STARTER
VFD - VARIABLE REQUENCY DRIVE
ATS - AUTOMATIC TRANSFER SWITCH
MTS - MANUAL TRANSFER SWITCH
PC - PHOTOCELL
GND - GROUND
NEUT - NEUTRAL
HOA - HAND-OFF-AUTO SELECTOR SWITCH
ETM - ELAPSTED TIME METER
ATL - ACROSS THE LINE
PB - PUSH BUTTON
JB - JUNCTION BOX
GEN - GENERATOR
CB - CIRCUIT BREAKER
CT - CURRENT TRANSFORMER
IT - INSTANTANEOUS TRIP





ELECTRICAL ONE LINE DIAGRAM

N.T.S.

US Army Corps of Engineers

DATE	DESCRIPTION	BY

DESIGNED BY: DEBRA WELLS
DRAWN BY: DRC/JTK
CHECKED BY:
SUBMITTED BY: THOMAS T. BURKE, PE
FILE NAME: 100137EE-SHEET-E-101.DWG
ISSUE DATE: JUNE 2016
SOLICITATION NO.: W912RK-XX-XXXXX
CONTRACT NO.: W912RK-XX-C-XXXX
PROJECT CODE: 100137EE
U.S. ARMY CORPS OF ENGINEERS 111 NORTH CANAL STREET CHICAGO, ILLINOIS
5679 W. INGOMAR ROAD, SUITE 200 HUGHSONVILLE, ILLINOIS 60018

CONSTRUCTION PLANS
4TH AVENUE DRAINAGE PROJECT
GARY, INDIANA

BEVERLY DRIVE ELECTRICAL PLAN

SHEET ID
E-101
SHEET 49 OF 53

100%

GROUNDING NOTES

1. FURNISH AND INSTALL A GROUND FIELD AS SHOWN. GROUNDING CONDUCTOR SHALL BE INSTALLED 1-FT. MINIMUM BELOW GROUND.
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1"	1	RGS	WET WELL EQUIPMENT GROUND (3/C #6 GROUND) (GROUND ONLY)	6
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CONDUIT & GROUNDING PLAN

N.T.S.

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EQUIPMENT SCHEDULE

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ELECTRICAL SYMBOLS

- LOCAL UTILITY METER
- MOTOR W/ HP INDICATED
- SURGE PROTECTION
- MOTOR STARTER
- 100 (OR) / M — 100 AF / 15 AT — MOLDED CASE CIRCUIT BREAKER (UPPER NUMBER INDICATES FRAME SIZE) (LOWER NUMBER INDICATES TRIP SETTING) (M-INDICATES MOTOR CIRCUIT PROTECTED)
- TRANSFORMER (POWER)
- INDICATING LIGHT (WITH COLOR INDICATED)
- NORMALLY OPEN CONTACTOR
- NORMALLY CLOSED CONTACTOR
- FUSED DISCONNECT
- MECHANICAL INTERLOCK
- FUSE
- SWITCH
- DISCONNECT DEVICE
- THERMAL MAGNETIC OVERLOAD DEVICE
- GROUND

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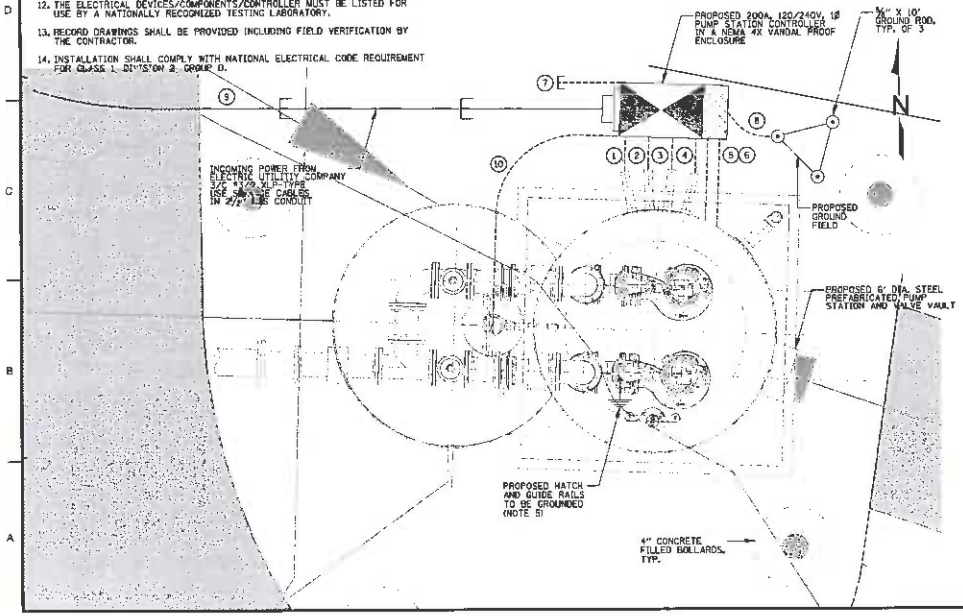
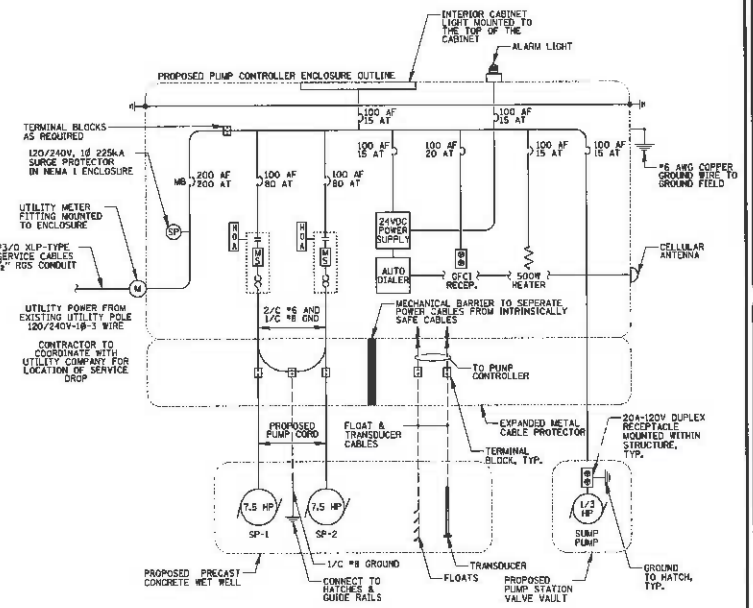




ELECTRICAL ONE LINE DIAGRAM

N.T.S.

US Army Corps of Engineers®

DATE	DESCRIPTION	REVISIONS

DESIGNED BY: JOSE A. ALVAREZ, PE
DRAWN BY: JOSE / ATK
CHECKED BY:
SUBMITTED BY:
SIZE: ANSI D
FILE NAME: 20121AlvarezELEC-101112.dwg
ISSUE DATE: JUNE 2012
SOLICITATION NO.: W912HN-XX-XXXX
CONTRACT NO.: W912HN-XX-C-XXXX
PROJECT CODE:

U.S. ARMY CORPS OF ENGINEERS CHICAGO DISTRICT CHICAGO, ILLINOIS

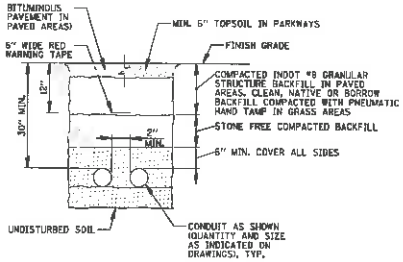
4FTN W. HECKLINE ROAD, SUITE 600 ROSEMONT, ILLINOIS 60018

CONSTRUCTIONS PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

40TH PLACE ELECTRICAL PLAN

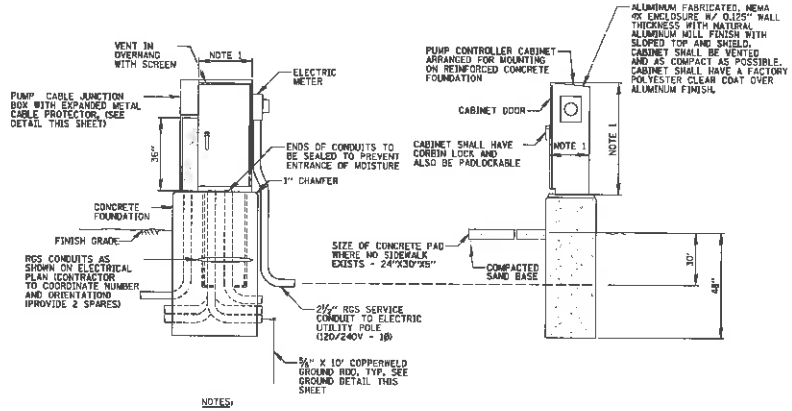
SHEET ID
E-102
SHEET 50 OF 53

100%



ELECTRICAL CONDUIT INSTALLATION

N.T.S.

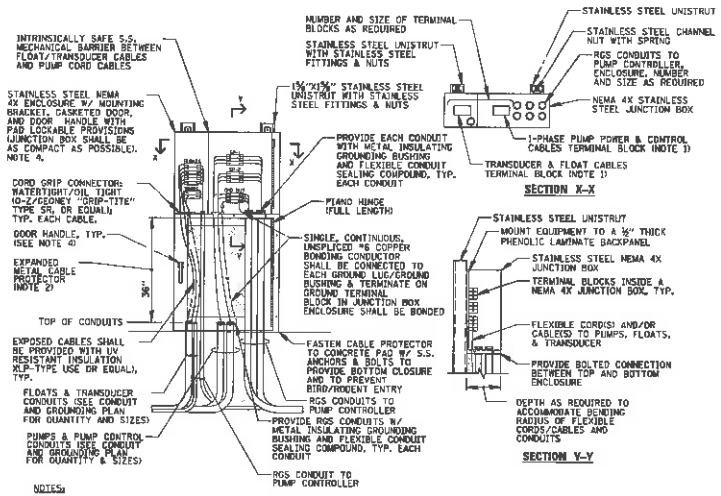


NOTES:

1. CABINET DIMENSIONS SHOWN ARE APPROXIMATE. CABINET SHALL BE AS COMPACT AS POSSIBLE. CONTRACTOR TO COORDINATE.

PUMP CONTROLLER CABINET AND FOUNDATION

N.T.S.

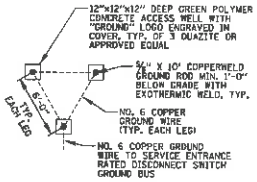


NOTES:

1. PROVIDE MECHANICAL BARRIER TO SEPARATE POWER CABLES FROM INTRINSICALLY SAFE CABLES.
2. HINGED CABLE PROTECTION COVER SHALL BE 14 GA. TYPE 304 FLATTENED STAINLESS STEEL WITH A DIAMOND PATTERN, 75% OPEN AREA & CLOSED (BOND) EDGE CONFIGURATION FORMED TO MATCH DEPTH OF THE JUNCTION BOX (WIDTH AS REQUIRED). AN EXTRA LAYER OF 11 GA. STAINLESS STEEL WIRE CLOTH WITH ½" OPENING SHALL BE PROVIDED TO PREVENT VANDAL ENTRY.
3. SEAL AROUND EXPANDED METAL CABLE PROTECTOR TO PREVENT BIRD/RODENT ENTRY.
4. TOP ENCLOSURE (JUNCTION BOX) SHALL BE PROVIDED WITH 3 POINT LATCHING MECHANISM WITH NYLON ROLLERS AT TOP AND BOTTOM. BOTH JUNCTION BOX AND EXPANDED METAL CABLE ENCLOSURE SHALL BE PROVIDED WITH A STAINLESS STEEL DOOR HANDLE WITH PADLOCK PROVISIONS.
5. ENCLOSURE SHALL BE AS MANUFACTURED BY J&A SHEET METAL, INC., CHICAGO, IL OR APPROVED EQUAL.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE REQUIRED SIZE AND NUMBER OF TERMINAL BLOCKS, CORD GRIPS, CONDUITS, ETC. NECESSARY FOR PROPOSED DESIGN. THE ABOVE DETAIL IS SCHEMATIC IN NATURE AND DOES NOT DETAIL EXACT QUANTITIES AND SIZES OF PUMP POWER AND CONTROL CABLES AND CONDUITS.
7. ALL ENCLOSURES, CONDUITS & EQUIPMENT SHALL BE BONDED WITH NEC COMPLIANT SIZING (250.122)

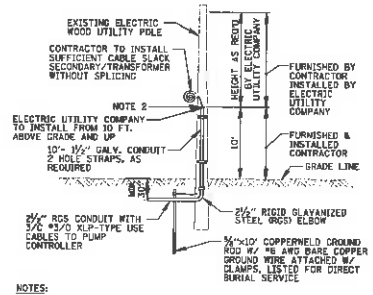
PUMP CABLE JUNCTION BOX DETAIL

N.T.S.



GROUND FIELD DETAIL

N.T.S.

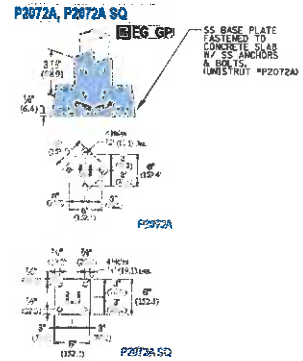


NOTES:

1. ALL WORK SHALL CONFORM TO ELECTRIC UTILITY COMPANY'S BOOK OF "INFORMATION AND REQUIREMENTS FOR THE SUPPLY OF ELECTRIC SERVICE."
2. CONTRACTOR SHALL PROVIDE CONDUIT BUSHING AND SEALING COMPOUND AT TOP OF RISER.

ELECTRIC UTILITY COMPANY OVERHEAD CONNECTION POLE

N.T.S.



NOTES:

1. UNISTRUT CHANNELS, FASTENERS & BASE PLATES SHALL BE STAINLESS STEEL.

UNISTRUT SUPPORT DETAIL

N.T.S.

US Army Corps of Engineers

MARK	DESCRIPTION	DATE

DESIGNED BY: JJC
DRAWN BY: JJC
CHECKED BY: JJC
SUBMITTED BY: JJC
SIZE: ANSI D
FILENAME: 60616000-A-A-E-E-E-501.dwg

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

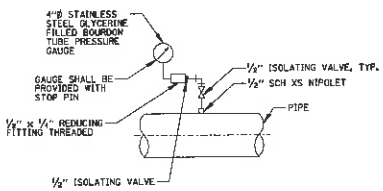
5979 W. HIGGINS ROAD, SUITE 600
ROSEMONT, ILLINOIS 60018

CONSTRUCTION DRAWINGS
4TH AVENUE GRADE PROJECT
GARY, INDIANA

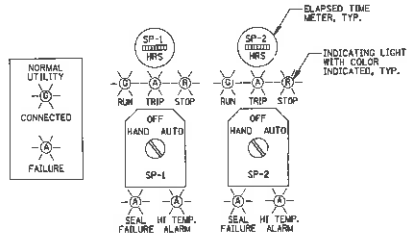
ELECTRICAL DETAILS

SHEET ID
E-501
SHEET 8 OF 53

100%



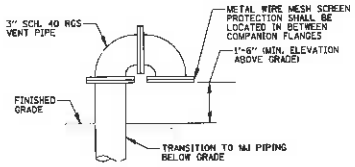
PRESSURE LEVEL SENSOR AND GAUGE
N.T.S.



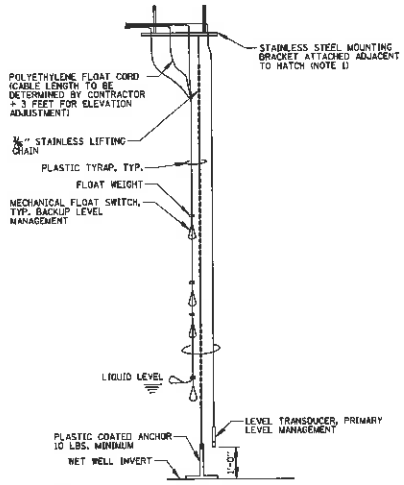
NOTES:

1. INDICATING LIGHTS SHALL BE LED WITH PUSH-TO-TEST FEATURE.

TYPICAL CONTROL LAYOUT
N.T.S.



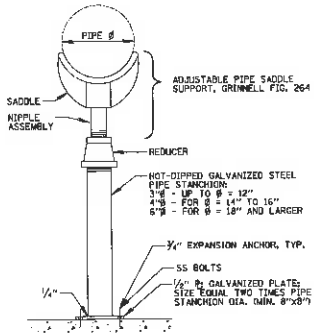
FLANGED VENT PIPE DETAIL
N.T.S.



NOTES:

1. CONTRACTOR SHALL INSTALL FLOAT/TRANSDUCER MOUNTING BRACKET IN A READILY ACCESSIBLE LOCATION ADJACENT THE PROPOSED ACCESS HATCH. OWNER/OPERATOR SHALL NOT BE REQUIRED TO USE SPECIAL TOOLS, OR HAVE TO ENTER THE STRUCTURE TO ACCESS FLOAT/TRANSDUCER CABLES.
2. CONTRACTOR SHALL FURNISH AND INSTALL NEW FLOAT AND TRANSDUCER CABLES (SEE PLANS FOR LOCATION AND NUMBER REQUIRED).
3. THE FLOAT SWITCH SYSTEM SHALL OPERATE AS A BACK-UP SYSTEM. A PRIMARY LEVEL MANAGEMENT SYSTEM SHALL BE PROVIDED AND SHALL CONSIST OF A PRESSURE TRANSDUCER WITH A 0-20 FT RANGE.

LEVEL MANAGEMENT
N.T.S.



STANCHION PIPING SUPPORT
N.T.S.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: STEVEN WILLIAMS
DRAWN BY: DAN KIRK
CHECKED BY: CHRIS
SUBMITTED BY: STEVEN WILLIAMS
DATE: 2/2/2022
FILE NAME: M-501.DWG
ISSUE DATE: 2/2/2022
SOLICITATION NO.: W912PN-XX-XXXXX
CONTRACT NO.: W-C1PN-XX-XXXXX
PROJECT CODE: 60XXXXXX

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

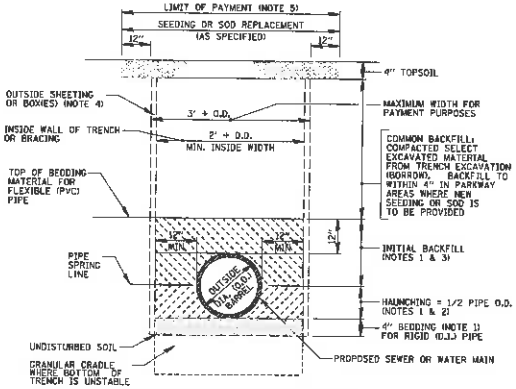
9979 W. HIGGINS ROAD, SUITE 500
P.O. BOX 1027, DWIGHT, ILLINOIS 60419

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

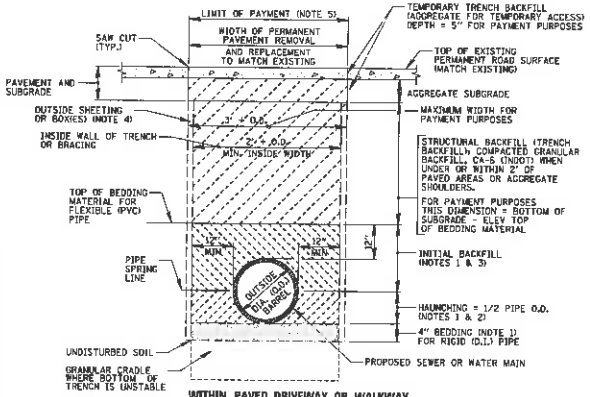
MECHANICAL DETAILS

SHEET ID
M-501
SHEET 52 OF 53

100%



WITHIN PARKWAY AREAS (COMMON BACKFILL)



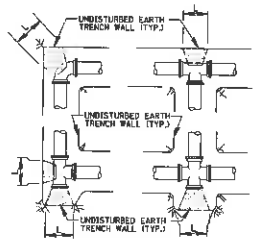
WITHIN PAVED, DRIVEWAY OR WALKWAY AREAS (STRUCTURAL BACKFILL)

NOTES:

1. BEDDING/HAUNCHING/INITIAL BACKFILL:
   A. FOR FLEXIBLE (PVC) PIPE THE BEDDING/HAUNCHING/INITIAL BACKFILL MATERIAL SHALL CONFORM TO INDOT CA-11 OR CA-13 GRADATION.
   B. FOR RIGID (D.I.) PIPE THE BEDDING MATERIAL SHALL BE CA-11, AND THE HAUNCHING/INITIAL BACKFILL SHALL MATCH THE TRENCH BACKFILL MATERIAL.
2. AFTER BEDDING HAS BEEN PLACED/COMPACTED/BROUGHT TO GRADE, PLACE AND COMPACT HAUNCHING TO PIPE SPRING LINE.
3. PLACE INITIAL BACKFILL IN TWO STAGES AS FOLLOWS:
   1ST STAGE - PLACE & COMPACT TO TOP OF PIPE
   2ND STAGE - PLACE & COMPACT AT LEAST 12" OVER TOP OF PIPE
4. VOIDS LEFT BY SHEETING/BRACING WHEN REMOVED SHALL BE FILLED WITH FINE SAND AND SHALL BE CONSIDERED INCIDENTAL TO THE WORK. SHEETING TO BE LEFT IN PLACE WHEN SPECIFIED ON THE PLANS.
5. CONTRACTOR IS RESPONSIBLE FOR ALL RESTORATION BEYOND THE LIMIT OF PAYMENT AS SHOWN.
6. THE COST FOR BEDDING SHALL BE INCLUDED IN THE COST OF PIPE INSTALLATION.

TYPICAL TRENCH BACKFILL DETAILS & TRENCHING NOTES FOR PARKWAY AREAS AND PAVED AREAS

N.T.S.



TYPICAL PLAN

TYPICAL SECTIONS

BEARING SURFACE AREA TABLE

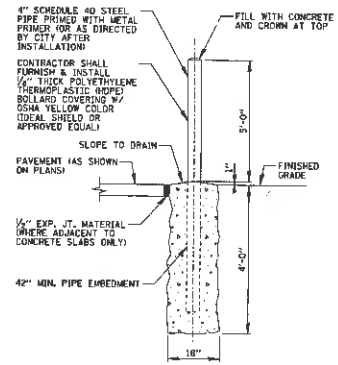
PIPE SIZE	PIPE BEND IN DEGREES				PLUG OR TEE
	90	45	22.5	11.25	
8"	5 SQ. FT.	3 SQ. FT.	2 SQ. FT.	1 SQ. FT.	3 SQ. FT.
10"	7 SQ. FT.	4 SQ. FT.	2 SQ. FT.	1 SQ. FT.	5 SQ. FT.
12"	10 SQ. FT.	5 SQ. FT.	3 SQ. FT.	2 SQ. FT.	7 SQ. FT.
14"	13 SQ. FT.	7 SQ. FT.	4 SQ. FT.	2 SQ. FT.	9 SQ. FT.
16"	17 SQ. FT.	9 SQ. FT.	5 SQ. FT.	2 SQ. FT.	12 SQ. FT.
20"	26 SQ. FT.	14 SQ. FT.	7 SQ. FT.	4 SQ. FT.	18 SQ. FT.
30"	50 SQ. FT.	27 SQ. FT.	14 SQ. FT.	7 SQ. FT.	35 SQ. FT.
36"	75 SQ. FT.	40 SQ. FT.	20 SQ. FT.	10 SQ. FT.	55 SQ. FT.

NOTES:

1. PROVIDE PRECAST OR CAST-IN-PLACE CONCRETE THRUST BLOCKS OF ADEQUATE SIZE AND THRUST BEARING SURFACE TO PREVENT MOVEMENT OF PIPELINE UNDER PRESSURE. SEE TABLE FOR BEARING SURFACE AREA.
2. PLACE THE BASE AND THRUST BEARING SIDES OF THRUST BLOCK DIRECTLY AGAINST UNDISTURBED EARTH.
3. PLACE THRUST BLOCKING SO THE FITTING JOINTS WILL BE ACCESSIBLE FOR REPAIR.
4. THE LENGTH (L) OF THE THRUST BLOCK SHALL BE APPROXIMATELY TWICE THE WIDTH (W).
5. THRUST BLOCKS ARE BASED ON A 2000 PSF SOIL BEARING LOAD AND 100 PSI THRUST INSIDE THE PIPE.
6. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 2000 PSI AFTER 28 DAYS.

TYPICAL FORCEMAIN THRUST BLOCK INSTALLATIONS

N.T.S.



BOLLARD DETAIL

N.T.S.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: LEE M. TULI, P.E.
DRAWN BY: CHECKED BY: JPC
SUBMITTED BY: SIZE: ANSI D
FILE NAME: 00CIV01.dwg
ISSUE DATE: JUNE 2018
SOLICITATION NO.: W912P8-XX-XXXXX
CONTRACT NO.: W912P8-XX-X-XXXX
PROJECT CODE: 00CIV01

U.S. ARMY CORPS OF ENGINEERS
CHICAGO DISTRICT
CHICAGO, ILLINOIS

9275 W. HIGGINS ROAD, SUITE 1-0
ROSEMONT, ILLINOIS 60018

CONSTRUCTION PLANS
41st AVENUE DRAINAGE PROJECT
GARY, INDIANA

CIVIL DETAILS

SHEET ID
C-507
SHEET 53 OF 53

100%

Handout 9-A-1
8-17-16

PLANS & SPECIFICATIONS FOR

2016 Turkey Creek Bank Stabilization, Joliet Street to James Wittchen Drive

TOWN OF SCHERERVILLE, ST JOHN TOWNSHIP
LITTLE CALUMET RIVER WATERSHED

Prepared For

Lake County Drainage Board

LAKE COUNTY SURVEYOR – BILL EMERSON, JR.

Lake County, IN
Date Printed: August 15, 2016

Prepared By
The Office of Lake County Surveyor

August 15, 2016

2016 TURKEY CREEK BANK STABILIZATION
Joliet St to James Wittchen Dr, Schererville, St John Twp.

SPECIAL INSTRUCTIONS TO BIDDERS

A. GENERAL INFORMATION:

1. It is the intention of the Lake County Drainage Board, hereinafter referred to as the Board, to secure bids for maintenance work to be performed on TURKEY CREEK BANK STABILIZATION hereinafter referred to as the Project, as identified and described herein and in the plans and specifications prepared by the Lake County Surveyor's office, hereinafter referred to as the Manager.

2. All bids for the proposed work shall be submitted on a unit price or lump sum basis, as applicable, and as set forth on the bid proposal form attached herein, all in accordance with the project documents.

3. The Board intends to review all bids for the project and upon final review and determination, award the bid to the successful bidder. Among other considerations, the successful bidder will be determined by the lowest most responsive and responsible overall total bid as provided in the bid proposal form attached herein. The total quantity of work to be awarded by the Board will be based on the total dollars available at the time of contract award and the respective applicable unit prices and/or lump sums of the successful bidder.

4. The bid proposal form to the Board consisting of 2 pages, as set out hereinafter, shall be attached and submitted with Bid Form 96 and Form 95.

A. BIDDERS INFORMATION

1. It is the responsibility of all project bidders to review all bid documents to ascertain their effect on each bid.

2. It is the responsibility of all project bidders to carefully examine the project site and fully inform himself/herself with the limitations and conditions related to the work covered by his/her bid, and shall include in his/her bid a sum to cover the cost of all such items. It is the purpose and intent of the contract documents that a fully complete job be accomplished. It is the responsibility of each bidder to include all costs necessary to provide all labor, materials and equipment for the portion of the work bid upon, including incidentals, whether or not specifically called for in the project plans and specifications. Each bidder by making his/her bid represents that he/she has read and understands the bid documents and represents that he/she has visited the site and has familiarized himself/herself with all the conditions under which the work is to be performed.

3. It is the responsibility of all bidders to contact all utility companies and public and/or private agencies to become familiar with the specific locations of all existing utilities and systems that will affect the work. The successful bidder shall protect all such systems and utilities, including all other improvements which may exist within or adjacent to the work area during the prosecution of the work. All existing improvements, utilities and systems that may be

damaged during construction shall be repaired and/or replaced to a condition at least equal to that prior to such damage at no additional expense to the Board. All such companies shall be notified prior to commencement of the work in order that all such lines be located and identified by the affected companies.

4. All inquiries as to the documents, interpretations, substitutions, conflicts, discrepancies, omissions and questions shall be referred to the Manager, representative of the Board, who in turn will refer same to the Board.

5. All bidders in doubt as to the true meaning of any part of the project documents shall submit to the Manager, not less than seven (7) days before the bid deadline, a written request for interpretation and clarification.

6. Bidders are responsible for acquiring any and all issued addenda in time to incorporate them into their bid. Each bidder shall enumerate all addenda he has received in his bid.

7. All bidders and their sub-contractors, if any, shall furnish proof, satisfactory to the Board that they are in good standing and are authorized to do business in the State of Indiana and that they are licensed to perform the work within the County of Lake. All bidders shall hold a General Contractor License from the County of Lake. All bidders shall furnish a list of their sub-contractors, if any, including name, address and telephone numbers.

8. The County's affirmative action program as adopted by the County of Lake, dated May 31, 1977, a copy of which is on file in the Lake County Auditor's office and the office of the Board of Commissioners of the County of Lake, is a condition of the project documents. The bidder shall submit, together with his/her bid, in writing, his/her affidavit, that he/she will comply with the County's affirmative action program.

9. It is recommended that all bidders attend any and all pre-bid conferences that may be scheduled by the Board.

10. The Lake County Surveyor, or their designated agents, will perform project supervision and periodic inspections to determine compliance with all project documents, percentages or inspections will include measurements and elevations of the completed work for compliance with the plans and specifications prior to payment recommendations to the Board.

11. The Contractor shall be permitted to submit claims for payment on a monthly basis as the work progresses, subject to a fifteen percent (15%) retainage, all as approved by the Lake County Surveyor or their designated agents. Fifteen percent (15%) of the completed value of the work shall be withheld by the Board for a period of sixty (60) days after the completion of the work and its acceptance by the Lake County Surveyor and the Engineer for the purpose of securing payment of suppliers, laborers and subcontractors, if any.

    The Contractor shall be required to furnish a sworn statement of all indebtedness for labor and materials furnished, used or extended for said construction, the amount of due and to become due to each subcontractor and material supplier before issuance of any payment, and final waiver of lien and an affidavit showing all bills, on the issuance of the final payment.

Upon certifications by the Lake County Surveyor or their designated agents, the Board shall pay to the Contractor, on account of the contract, the value of labor and materials incorporated into the work.

12. A bid security in the form of a certified check/cashier's check or a bid bond from an acceptable surety made payable to the Board shall accompany each bid. The bid security shall be in the penal amount of five percent (5%) of the total bid. Bid security shall be forfeited if the bid is withdrawn after closing time on the date for receiving bids. Out of state bidders must submit a certified check of ten percent (10%) of the total bid made payable to the Board.

    Upon execution of the contract, the successful bidder shall give to the Board a bond payable to the Board, in an amount fixed by the Board but not less than the amount of the bid, and with a corporate surety licensed to do business in Indiana. The bond must be conditioned on the faithful performance of the contract and the payment of all expenses and damages incurred under the contract, including payment of all suppliers, laborers, and subcontractors. However, in lieu of a corporate surety bond, the Board may accept:
    (1) a cash bond;
    (2) a property bond; or
    (3) a bond from a sufficiently financed private bonding company.

13. All Contractors, including sub-contractors, shall carry full insurance coverage and certificates of insurance shall be delivered to the Board, upon signing of the contract.

    a. Workmen's Compensation, as required by applicable Federal and State laws.

    b. Contractor's Liability, including contractual liability, form of insurance shall be comprehensive general liability and comprehensive automobile liability $500,000 CSL; for bodily injury, property damage and personal injury, including complete operations broad form; bodily injury and property damage, automobile liability, owned , non-owned and hired.

    c. In addition to the above, the Contractor shall provide operations and products liability, XCU coverage and $1,000,000 umbrella liability.

    d. At all times during the progress of the work, the Contractor shall maintain such insurance as will protect and save harmless the Board, and its agents, from claims under the Workmen's Compensation Act, from any and all other claims for damages for property damage, personal injury and/or death and patent infringement, which may arise from operation under the contract documents, whether such act or omission be by itself or by an employee or sub-contractor or anyone directly or indirectly employed by either of them; and certificates of such insurance as required by the project documents shall be filed with the Board.

    e. Should the Board suffer any damage, cost or expense, including attorney's fees, in any manner, because of any wrongful act or negligence of the Contractor, or anyone employed by it or a subcontractor or the assertion of any claim of whatever nature which arises from operation under the contract documents, then the Contractor shall reimburse the Board for any such damage and all reasonable attorney fees and expenses related to such claim and/or reimbursement thereto, all without relief from validation and appraisement laws.

B. RIGHT OF THE BOARD

1. The Board reserves the right to issue addenda changing, altering or supplementing the contract documents, at any time prior to the bid deadline.

2. The Board reserves the right to reject any or all bids and to waive any information or irregularity in any bid accepted.

3. The Board reserves the right to approve or reject any sub-contractor submitted by the bidders.

4. The Board reserves the right to award all or individual projects within the scope of work to comply with available funds.

APPROVED THIS 17 DAY OF AUGUST, 2016

LAKE COUNTY DRAINAGE BOARD

Gerry Scheub

GERRY J. SCHEUB, CHAIRMAN

K.B.

MICHAEL C. REPAY , MEMBER

D.H.

KYLE W. ALLEN, SR., MEMBER

GENERAL INFORMATION

A. INDR. COE AND STATE PERMITS

The Board will procure all necessary permits from the Indiana Department of Natural Resources, the Army Corps of Engineers and the Indiana Department of Environmental Management for the performance of the work. All such permits are considered part of the project documents and all work shall be performed in strict compliance with all provisions and conditions therein. In the event discrepancies exist between the project documents and the provisions and conditions of such permits, the Contractor shall immediately notify the Lake County Surveyor or their designated agents to resolve any such discrepancy.

B. CONSTRUCTION METHODS AND STANDARDS

All construction methods, standards and specifications, as adopted by the Board shall govern the performance of the work unless otherwise specified in the project documents.

C. WORK WITHIN EASEMENTS

All work shall be performed within the limits of the existing regulated drain easement for TURKEY CREEK BANK STABILIZATION, and within other access and work easements acquired by the Board as otherwise specified herein.

D. MAINTENANCE OF DRAINWAYS

All construction shall be performed in such a manner that will not interfere with existing drainage of the areas adjacent to the project. All work shall be performed in such a manner that will ensure proper drainage.

E. AUTHORIZATION TO PROCEED

No work shall be performed prior to receipt of "Authorization to Proceed" notification from the Lake County Surveyor.

F. CONTRACTOR'S SCHEDULE

The Contractor will be requested to attend a pre-construction conference to be scheduled by the Lake County Surveyor at which time the Contractor will be required to submit a construction schedule to the Lake County Surveyor prior to commencement of the work.

2016 TURKEY CREEK BANK STABILIZATION
Joliet St to James Wittchen Dr, Schererville, St John Twp.

TECHNICAL SPECIFICATIONS

A. GENERAL

1. The Contractor shall remove any/all deleterious material from the ditch area and dispose same in an approved site.

2. It shall be the responsibility of the Contractor to fine grade the site to match the existing ground elevations.

3. Excess material generated shall be placed in sites as designated by the property owner.

4. Mirafi 180N 8oz. non-woven geotextile fabric AASHTO MZ88-96 Spec for sub surface drainage Class I and separation Class I or an equal material approved by the BOARD.

5. Single Net Erosion Control Blankets shall be the North American Green S75, or an equivalent approved by the BOARD. The S75 shall meet Type 2.C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

6. The Contractor will furnish and install any/all erosion protection devices in accordance with IDEM's/SCS Rule No. 5 as applicable for projects of this nature.

7. Any haul routes/roads shall be approved by the Town of Schererville and Lake County Surveyor. All disturbed areas (routes) shall be restored to prior conditions and seeded, mulched and fertilized in accordance with INDOT's standard seeding specification. Routing may be over subgrade roads with shallow utilities, i.e., existing sanitary/storm sewers, water mains/services, gas and/or telephone cables. It shall be the responsibility of the contractor to protect/maintain same. Any damages are the responsibility of the contractor.

8. All work described for this project is to be performed in a manner that does not adversely affect adjoining landowners' property.

BID PROPOSAL
For
2016 TURKEY CREEK BANK STABILIZATION
Joliet St to James Wittchen Dr, Schererville, St John Twp.

The undersigned, having familiarized (himself/herself/themselves) with the plans and specifications and on-site conditions which comprise the following:

Documents for the project known as the 2016 TURKEY CREEK BANK STABILIZATION
Joliet St to James Wittchen Dr, Schererville, St John Twp.

The undersigned has carefully inspected the site of the proposed work and can perform the various items of work for the unit prices/lump sums stipulated. All prices listed include any incidental work that may be necessary to complete the project in accordance with the provisions of the plans and specifications, as may be amended. Items listed below are shown and appropriately labeled on the plans.

ITEM NO. 1
Clear/snag all trees, debris, trash, vegetation from ditch bottom and both sides.
A total length of 625 linear feet at $_____/l.f. $_____

ITEM NO. 2
Apply 5x 90 revetment rip rap.
Total of 1,200 tons at $_____/ton $_____

ITEM NO. 3
Apply Mirafi 180N 8oz. non-woven geotextile fabric AASHTO MZ88-96 Spec for sub surface drainage Class I and separation Class I or an approved equal material.
Total of 1400 square yards at $_____/s.y. $_____

ITEM NO. 4
Apply North American Green S75, or an approved equivalent.
Total of 1,400 square yards at $_____ /s.y $_____

ITEM NO. 5
Mulch and seed all disturbed areas (INDOT Spec.)
Total of 0.29 acres at $_____/ac. $_____

ITEM NO. 6
Apply Silt Fence
A total length of 625 linear feet at $_____/lf $_____

ITEM NO. 7
Incidentals including mobilization and demobilization.
Lump Sum $_____

GRAND TOTAL: $_____

BID PROPOSAL
2016 TURKEY CREEK BANK STABILIZATION
Joliet St to James Wittchen Dr, Schererville, St John Twp.

_____ CAN BEGIN THE WORK IN _____ DAYS UPON
[Company Name]

RECEIPT OF AUTHORIZATION TO COMMENCE THE WORK FROM THE LAKE COUNTY SURVEYOR, WHICH INCLUDES MATERIAL DELIVERY TIME AND COMPLETE THE WORK WITHIN _____ DAYS, SUBJECT TO WEATHER CONDITIONS.

BID PROPOSAL FORM SUBMITTED THIS _____ DAY OF _____, 2016.

BY: _____
Company Name

_____
Authorize Signature

_____
Printed Name

_____
Address

_____
Phone No. Fax No.

_____
Email

Office of the Lake County Surveyor

Lake County Government Center • 2293 North Main Street • Crown Point, Indiana 46307
Phone: (219) 755-3745 • Fax: (219) 755-3750

Bill Emerson, Jr.
County Surveyor

August 17, 2016

To the Following Contractors: ***Via Email Notification***

Delta III Inc.
2063 West 1250 South
Hanna, Indiana 46340
ATTN: Mike Eaton
(219) 797-4004
delta3bill@csinet.net

Gariup Construction
3965 Harrison Street
Gary, Indiana 46401
ATTN: Christine Johnsen
(219) 887-5233
christine.johnsen@gariup.com

Dyer Construction
1716 Sheffield Avenue
Dyer, Indiana 46311
ATTN: Greg Furman
(219) 865-2961
gfurman@dyerconstruction.com

Austgen Equipment
11309 Broadway
Crown Point, Indiana 46307
ATTN: John Dumbsky
(219) 690-1850
john@austgenequipment.com

Grimmer Construction Inc.
2619 Main Street
Highland, Indiana 46322
ATTN: Margie Hoffman
(219) 924-1623
mhoffman@grimmerconstruction.com

R.A. Oros, Inc.
8244 Greenwood Avenue
Munster, Indiana 46321
ATTN: Emil Poppa
(219) 838-4942
elpop@comcast.net

RE: 2016 TURKEY CREEK BANK STABILIZATION
Joliet Street to James Wittchen Drive
Schererville, St John Twp.

The Lake County Surveyor has been requested to solicit proposals by the Lake County Drainage Board for the 2016 Turkey Creek Bank Stabilization - Joliet Street to James Wittchen Drive, Schererville, St John Twp. Therefore the Lake County Surveyor has scheduled a **Mandatory Meeting for Monday, August 29, 2016, at 2:00 PM Local Time at the project site. Your presence or a representative of your company is Mandatory in order to submit a proposal**.

The Lake County Surveyor is asking for a Proposal to clear and snag, slope repair and place rip-rap.

Please note proposals will only be accepted from contractors attending the Mandatory meeting referenced above. Also indicate the earliest date you can begin work and the time to complete.

Proposals are to be submitted no later than Wednesday, September 21, 2016, by 9:00AM, Local Time to:

Lake County Surveyor's Office
ATTN: Dan Gossman
2293 North Main Street
Crown Point, Indiana 46307

Proposals must be received at the above address in a sealed envelope, labeled Turkey Creek Bank Stabilization Project. Proposals received after 9:00 AM will be returned unopened.

The proposals will be opened at the Lake County Drainage Board meeting on Wednesday, September 21, 2016.

8-17-16
10-A-1

POTENTIAL BIDDERS
2016 MAIN BEAVER DAM DITCH BANK STABILIZATION
1423 EDGEWATER ROAD, CROWN POINT, IN
ROSS TWP., LAKE COUNTY, IN

O	R.A. OROS 8244 Greenwood Avenue Munster, IN 46321	$ 48,765.50
	GOUGH, INC. 2200 E. 88th Drive Merrillville, IN 46410	$
O	AUSTGEN EQUIPMENT 11309 Broadway, Suite C3 Crown Point, IN 46307	$ 79,172.00
	GRIMMER CONSTRUCTION 2619 Main Street Highland, IN 46322	$
O	KDM Services, LLC 11703 West 173rd Avenue Lowell, IN 46356	$ 44,025.75
	JCI BRIDGE GROUP P.O. Box 368 LaPorte, IN 45351	$
	Gary Material Supply, LLC 7318 West 15th Avenue Gary, IN 46406	$
	Dunnet Bay Construction 115 N. Brandon Drive Glendale Heights, IL 60139	$