Indiana Department of Environmental Management
Office of Water Quality
Wetlands Section

Publication Date:
October 6, 2010

Closing Date:
October 26, 2010

PUBLIC NOTICE

IDEM ID Number:
2010-385-29-BCB-A

Corps of Engineers ID Number:
2010-930-lcl

To all interested parties: This letter shall serve as a formal notice of the receipt of an application for **Section 401 Water Quality Certification** by the Indiana Department of Environmental Management (IDEM). The purpose of the notice is to inform the public of active applications submitted for water quality certification under Section 401 of the Clean Water Act (33 U.S.C. § 1341) and to solicit comments and information on any impacts to water quality related to the proposed project. IDEM will evaluate whether the project complies with Indiana's water quality standards as set forth at 327 IAC 2.

1. Applicant:
Michael McBride
City of Carmel – City Engineer
Carmel City Hall – First Floor
One Civic Square
Carmel, IN 46032

2. Agent:
Mr. William Hall
CrossRoad Engineers, P.C.
3417 Sherman Drive
Beech Grove, IN 46107

3. Project location: SW ¼ of Section 5, Township 17 North, Range 4 East, Fishers U.S.G.S. Quad, Hamilton County. The culvert crossings are located at Lakeshore Drive East and Lakeview Drive, Stratford Place and Barrington Drive, 106th Place between Barrington Drive and 106th Street, 106th Street east of 106th Place and Haverstick Road south of Lexington Lane.

4. Affected waterbody: Blue Woods Creek

5. Project Description: The applicant proposes to replace five (5) existing dual culvert crossings below the Ordinary High Water Mark (OHWM) of Blue Woods Creek with single concrete box culverts. Specifically, a 100' of 4' by 14' concrete box culvert, a 121' of 4' by 13' concrete box culvert, 71' of 4' by 11' concrete box culvert, 55' of 4' by 10' culvert, and 104' of 4' by 8' culvert will be installed to replace existing culverts at the locations indicated on the plans. The purpose of the project is to improve stream flow, sinuosity and local drainage. For additional plans and information, please visit the IDEM Public Notice Webpage at http://www.in.gov/idem/6399.htm.

Comment period: Any person or entity who wishes to submit comments or information relevant to the aforementioned project may do so by the closing date noted above. Only comments or information related to water quality or potential impacts of the project on water quality can be considered by IDEM in the water quality certification review process.

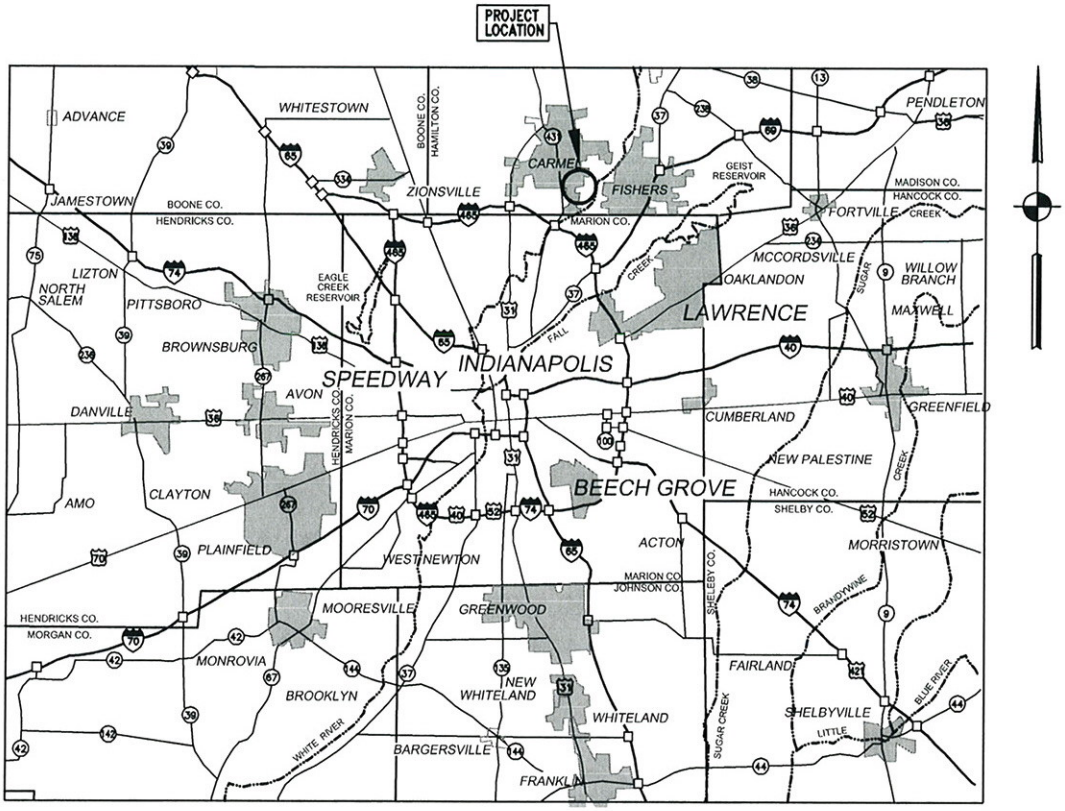
Public Hearing: Any person may submit a written request that a public hearing be held to consider issues related to water quality in connection with the project detailed in this notice. The request for a hearing should be submitted within the comment period to be considered timely. The request should also state the reason for the public hearing as specifically as possible to assist IDEM in determining whether a public hearing is warranted.

Questions? Additional information may be obtained from Mr. Brad Baldwin, Project Manager, at 317-234-5647. Please address all correspondence to the project manager and reference the IDEM project identification number listed on this notice. Indicate if you wish to receive a copy of IDEM's final decision. Written comments and inquiries may be forwarded to -

Indiana Department of Environmental Management
100 North Senate Avenue
MC65-42 WQS IGCN 1255
Indianapolis, Indiana 46204-2251
FAX: 317/232-8406

PROJECT DESCRIPTION

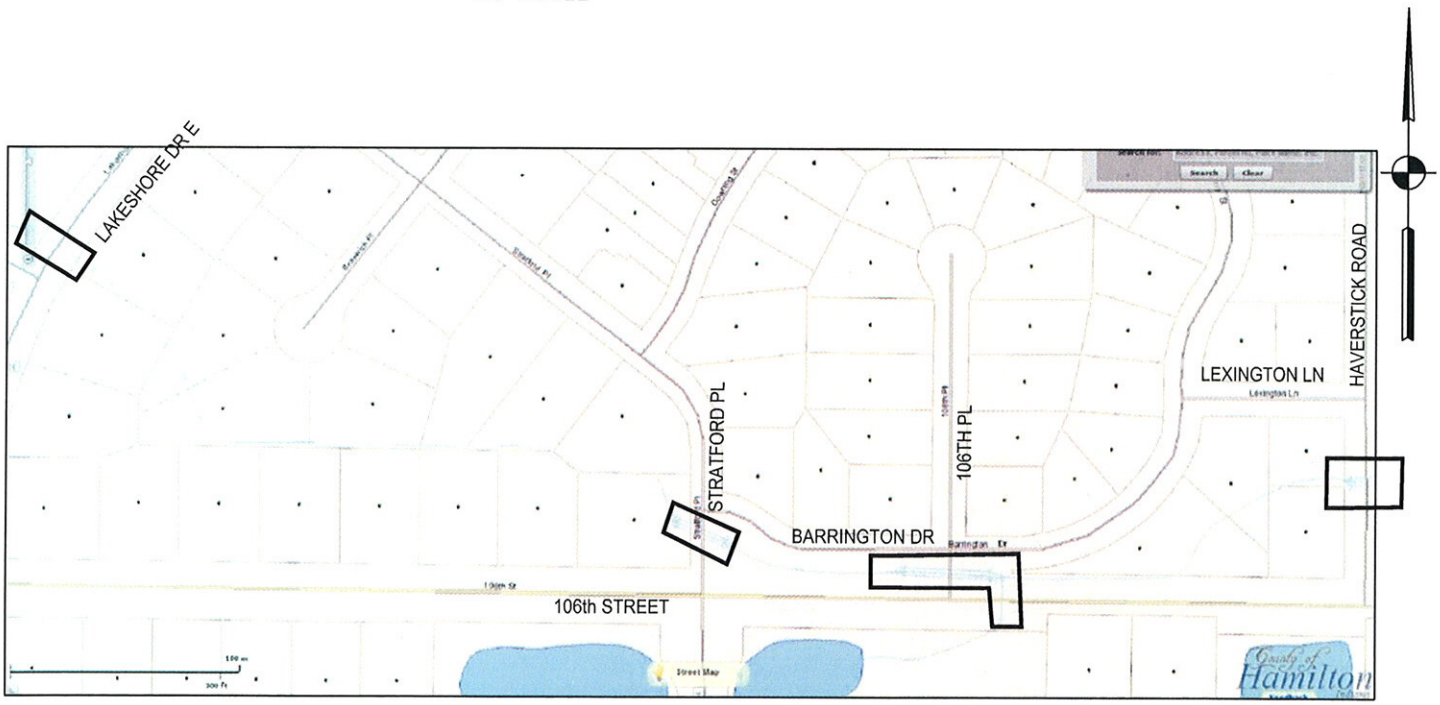
REPLACEMENT OF VARIOUS EXISTING TWIN ELLIPTICAL CMP CULVERTS CROSSING HAVERSTICK ROAD, 106TH STREET, 106TH PLACE, STRATFORD PLACE, AND LAKESHORE DRIVE EAST IN CARMEL, INDIANA. PART OF THE SW/SE QUARTERS OF SECTION 5, TOWNSHIP 17 NORTH, RANGE 4 EAST, CLAY TOWNSHIP.



LATITUDE AND LONGITUDE:
39.9417° N – 86.0981° W

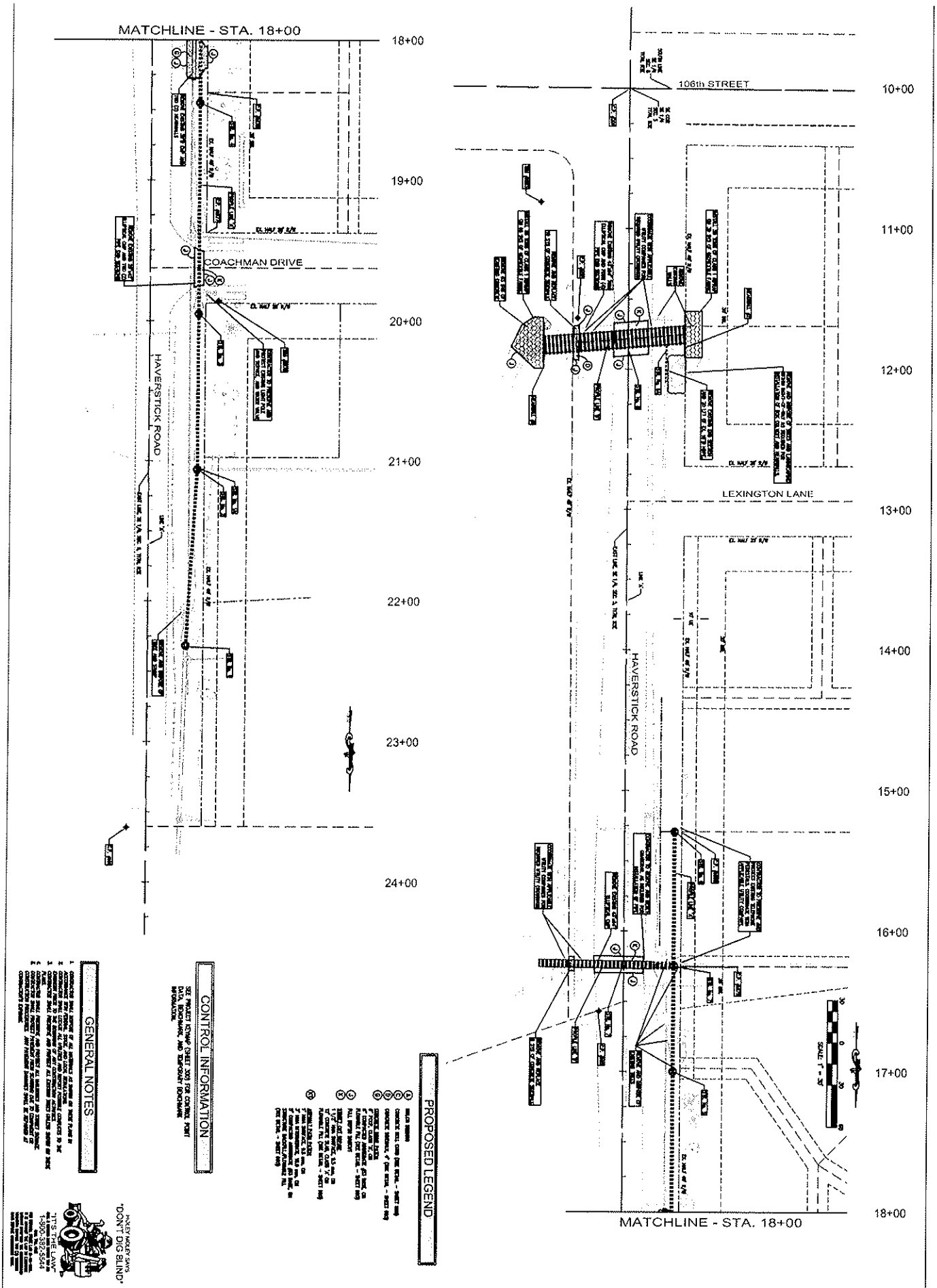
VICINITY MAP

NO SCALE



LOCATION MAP

NO SCALE



CONSTRUCTION DETAILS

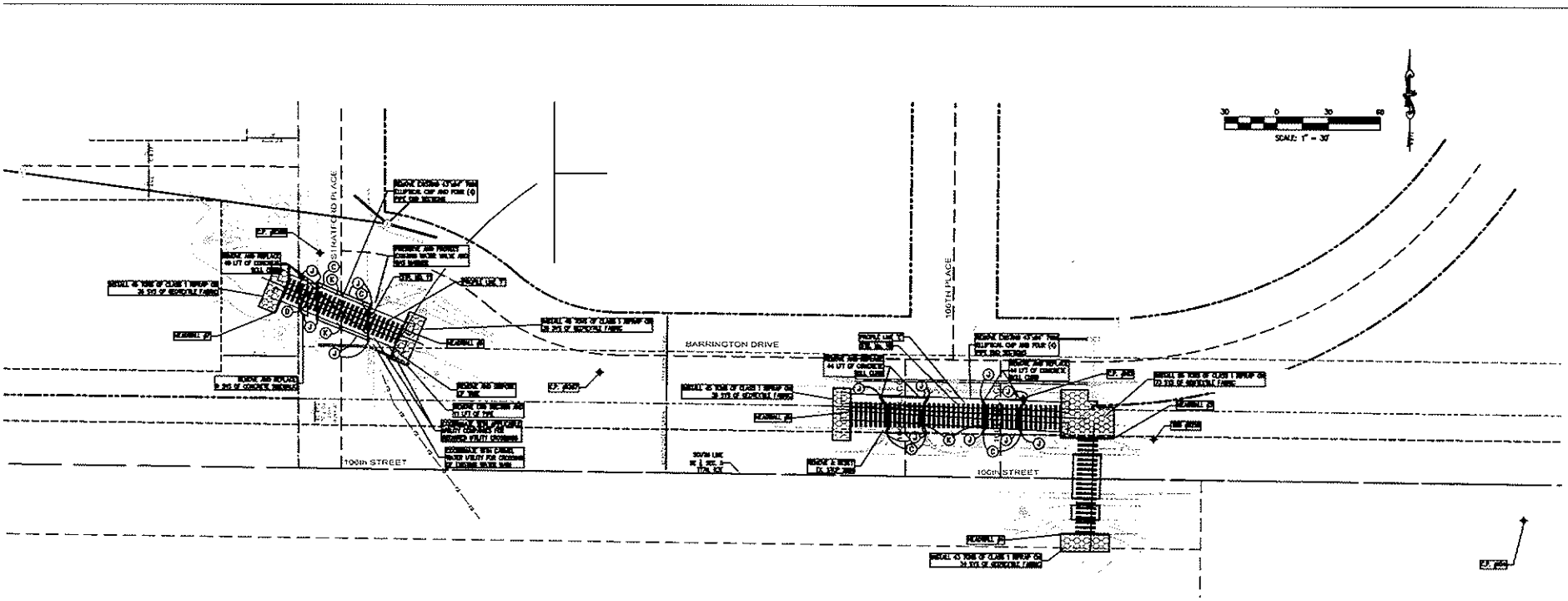
HAVERSTICK ROAD DRAINAGE IMPROVEMENTS

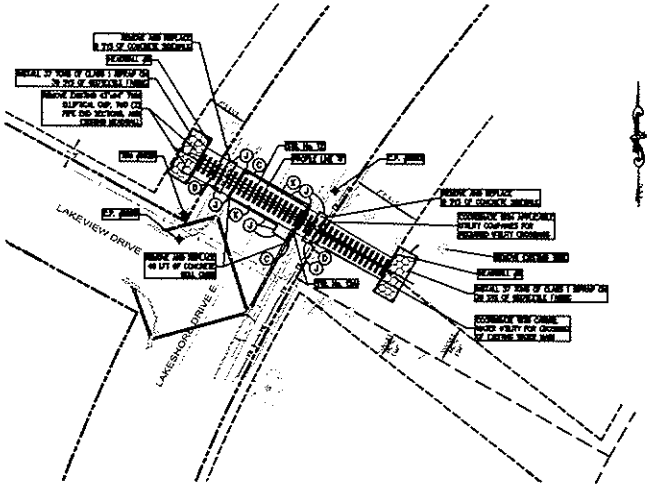
JOB No.	DRAWN SF	CHECKED GJ	
DATE AUGUST 27, 2010	DESIGNED WFH	APPR. TEN	SHEET 301

CROSSROAD ENGINEERS, LLC
Transportation & Development Consultants

TRENT E. NEWPORT REGISTERED PROFESSIONAL ENGINEER 18700381 STATE OF INDIANA

SHEET 301





PROPOSED LEGEND

- (A) MOLDS SIDEWALK
- (C) CONCRETE ROLL CURB (SEE DETAIL - SHEET 300)
- (D) CONCRETE SIDEWALK, 4" (SEE DETAIL - SHEET 300)
- (G) CONCRETE WEIR PATCH
  6" PCCP, CLASS "A", OH
  6" COMPACTED AGGREGATE (GS BASE, OH
  FLOWABLE FILL (SEE DETAIL - SHEET 300)
- (J) FULL DEPTH SAWCUT
- (K) STREET CUT REPAIR
  1 1/2" MIN. SURFACE, 9.5 mm, OH
  12" CONCRETE BASE, CLASS "A" OH
  FLOWABLE FILL (SEE DETAIL - SHEET 300)
- (KK) ASPHALT PATCH PATCH
  5" MIN. SURFACE, 9.5 mm, OH
  3" MIN. INTERMEDIATE, 19.0 mm, OH
  8" COMPACTED AGGREGATE (GS BASE, OH
  STRUCTURE BACKFILL/FLOWABLE FILL
  (SEE DETAIL - SHEET 300)

CONTROL INFORMATION

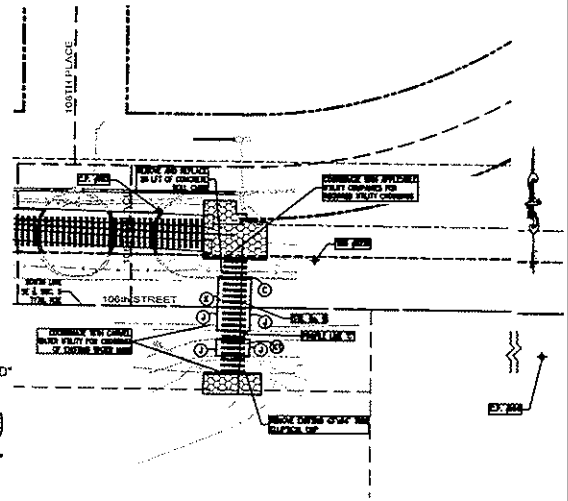
SEE PROJECT KEYMAP (SHEET 300) FOR CONTROL POINT DATA, BENCHMARK, AND TEMPORARY BENCHMARK INFORMATION.

GENERAL NOTES

1. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS AS SHOWN ON THESE PLANS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
2. CONTRACTOR SHALL LOCATE ALL UTILITIES AND REPORT POSSIBLE CONFLICTS TO THE ENGINEER PRIOR TO THE BEGINNING OF ANY CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL PROTECT AND PROTECT ALL EXISTING TREES UNLESS SHOWN ON THESE PLANS.
4. CONTRACTOR SHALL PROTECT AND PROTECT ALL MAILBOXES AND STREET SIGNAGE.
5. CONTRACTOR SHALL PROTECT PAVEMENT FROM SCARRING DUE TO EQUIPMENT OR CONSTRUCTION PROCEDURES. ANY PAVEMENT DAMAGES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

"IT'S THE LAW"
1-800-382-5544

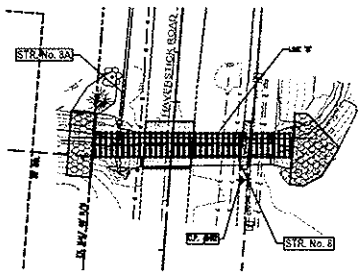


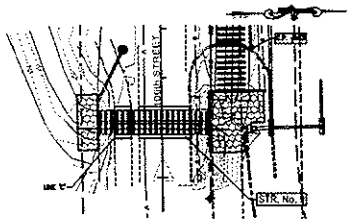
CONSTRUCTION DETAILS

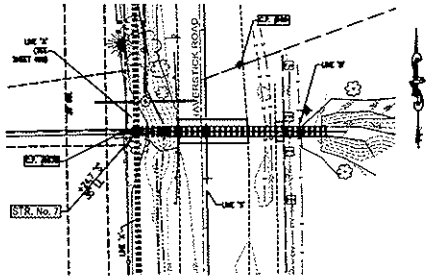
HAVERSTICK ROAD DRAINAGE IMPROVEMENTS

JOB No.	-	DRAWN	BY	CHECKED	CJ
DATE	AUGUST 27, 2010	REVISED	WFH	APPR.	TEM

SHEET 302







CONTROL INFORMATION

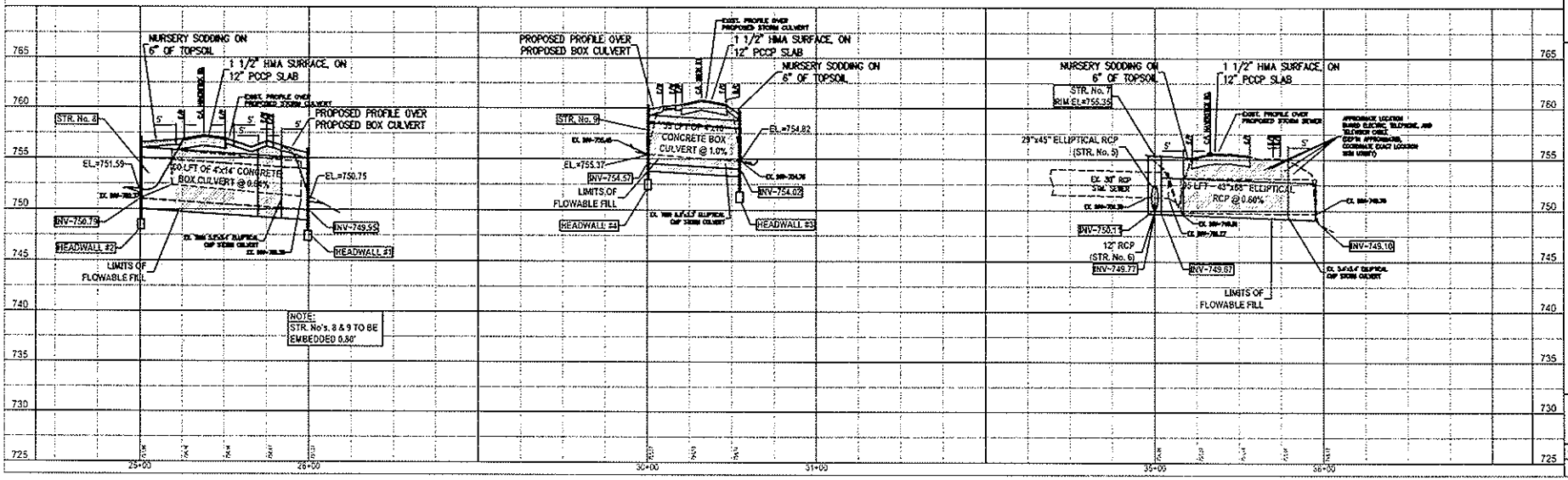
SEE PROJECT KEYMAP (SHEET 300) FOR CONTROL POINT DATA, BENCHMARK, AND TEMPORARY BENCHMARK INFORMATION.

30 0 30 60

HORZ. SCALE: 1" = 30'
VERT. SCALE: 1"=5'

EXISTING LEGEND

PONDPOLE	STORM CURB INLET	CLEANOUT	BURIED TELEPHONE LINE
PONDPOLE W/LIGHT	ROUND INLET	RIGHT-OF-WAY	WATER MAIN
LIGHT POLE	SANITARY MANHOLE	EDGE OF PAVEMENT	STORM SEWER W/MANHOLE & END SECTION
YARD LIGHT	SANITARY MANHOLE	DITCH	SANITARY SEWER W/MANHOLE
GUY WIRE	TELEPHONE BOX	FENCE	WET LINE
GAS VALVE	WATER VALVE	ELECTRIC LINE	TREES & BUSHES
MAILBOX	HYDRANT	GAS LINE	
	BLOWOFF ASSEMBLY	OVERHEAD UTILITY LINES	
	FLUC		
	BUTTERFLY VALVE		

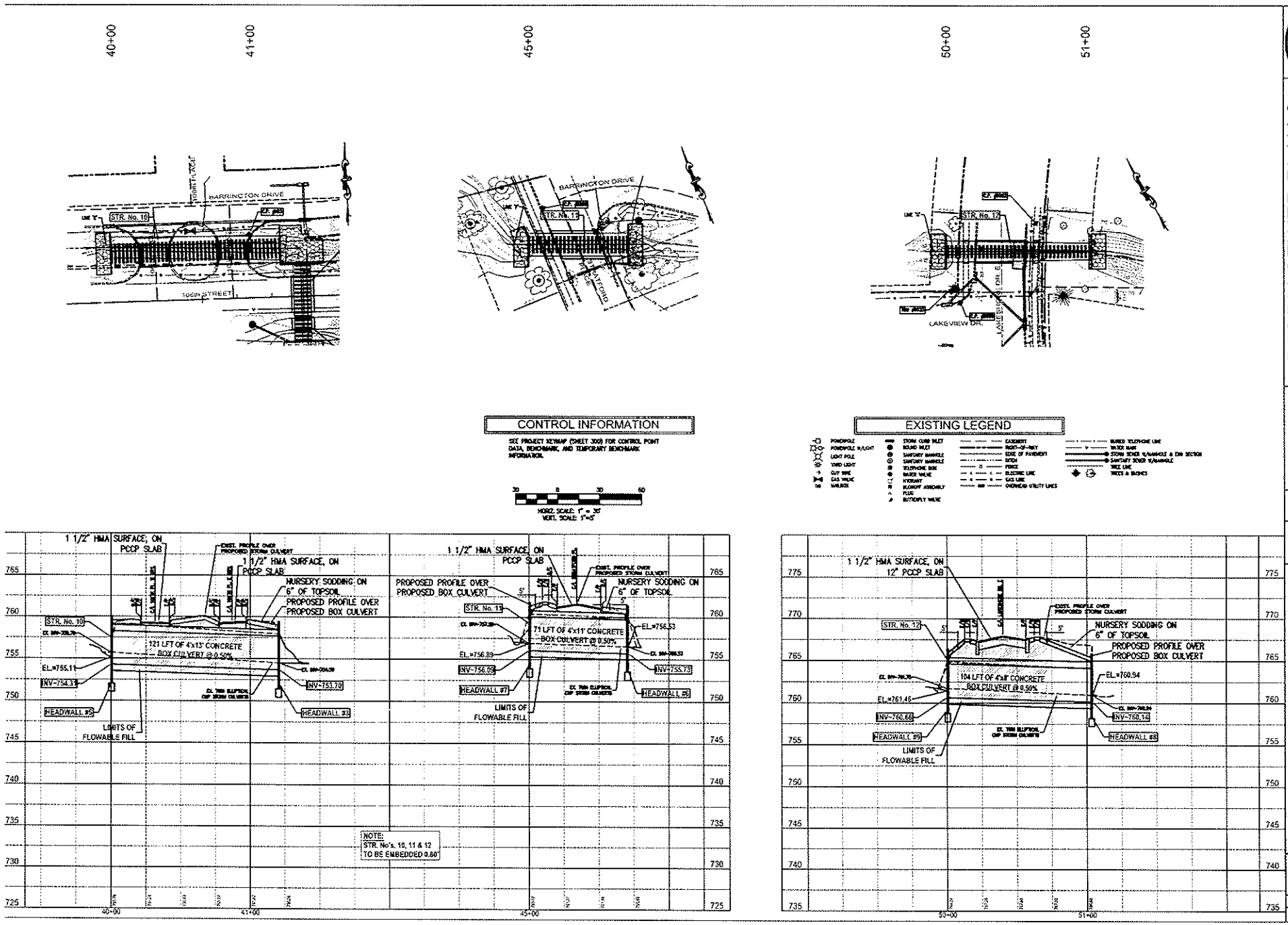


STORM SEWER PLAN & PROFILE - LINE 'B', 'C', & 'D'

HAVERSTICK ROAD DRAINAGE IMPROVEMENTS

JOB No. . | MAIN | DESIGNED | CHECKED | SHEET 401

DATE AUGUST 27, 2010 | REVISED | APPR.

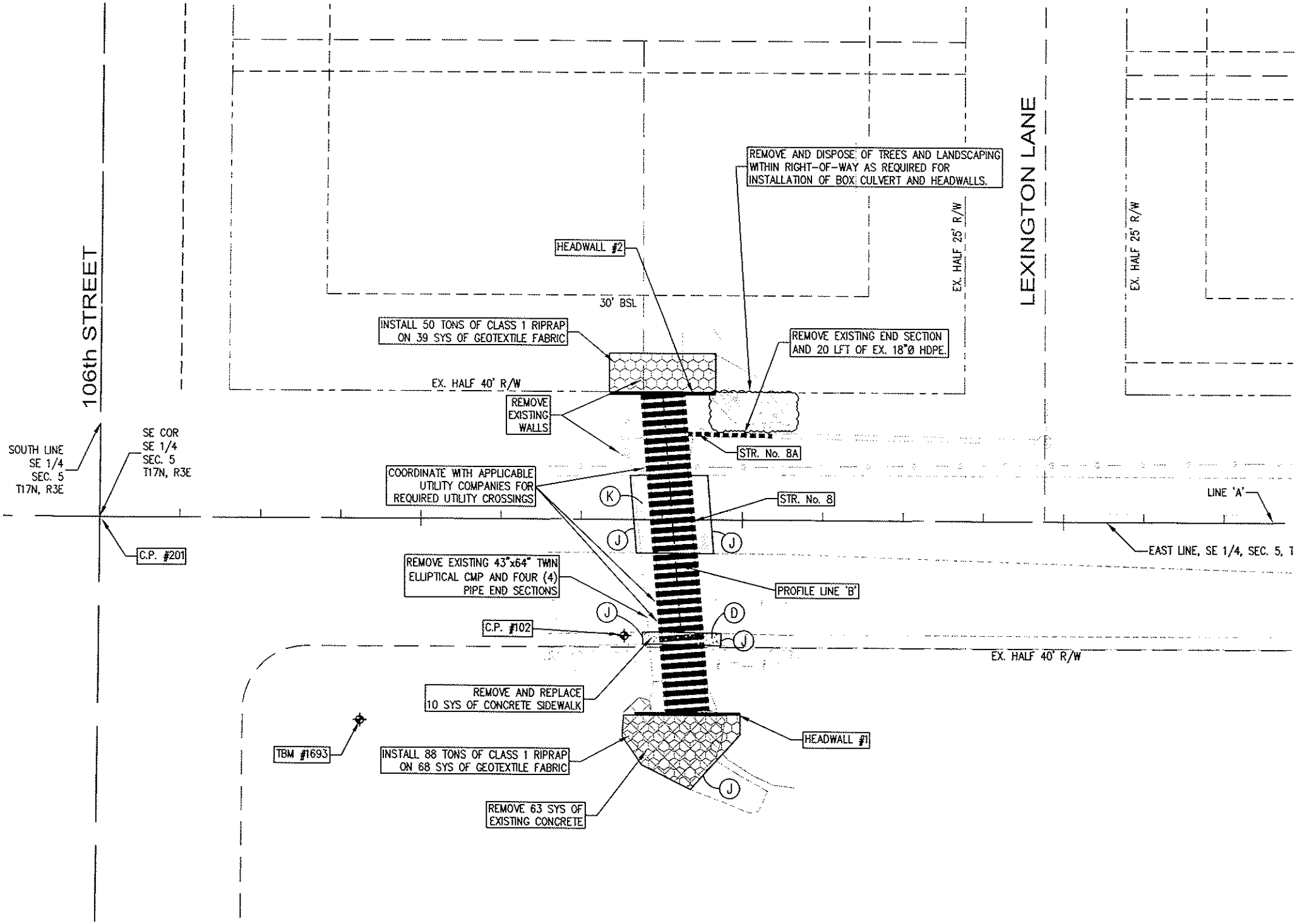


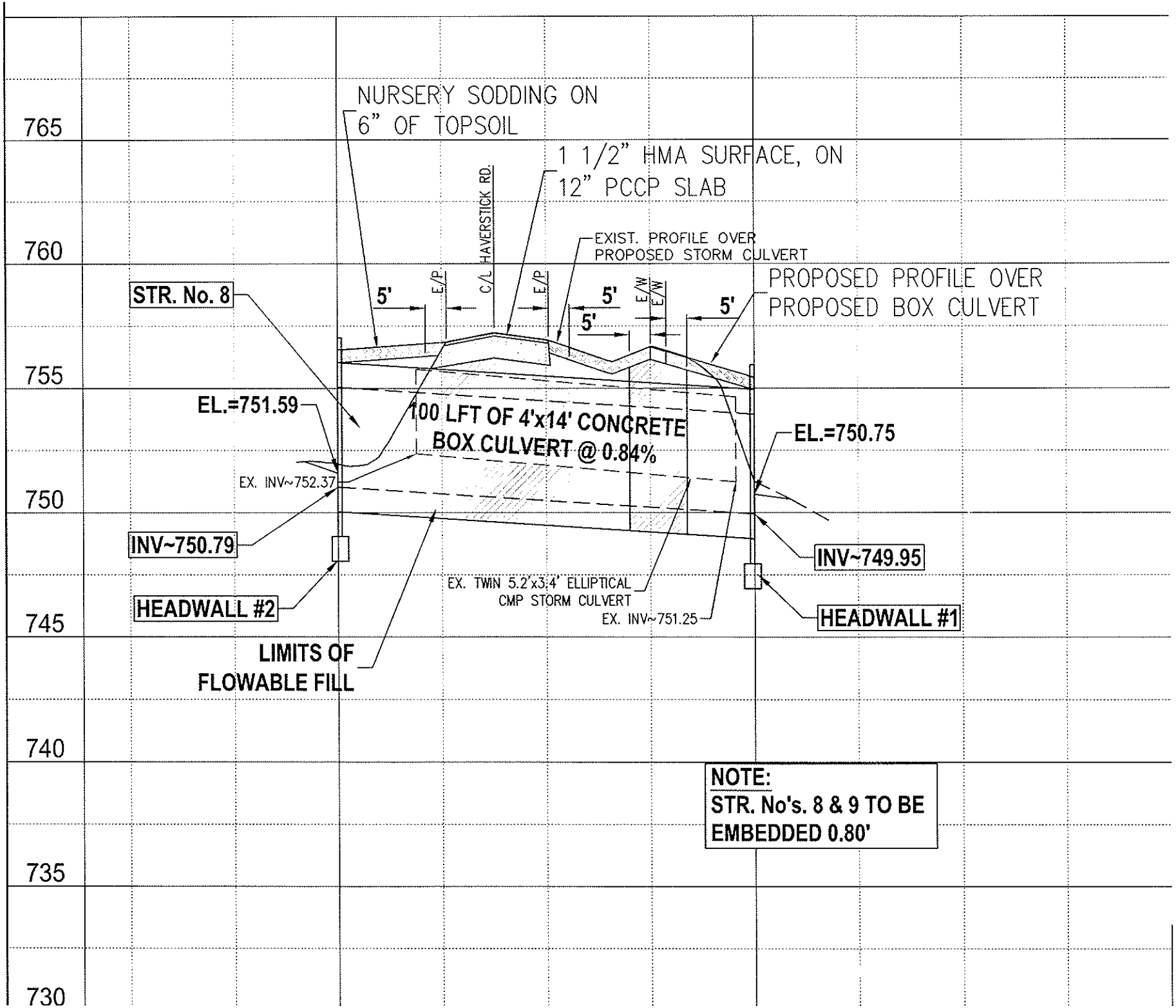
STORM SEWER PLAN & PROFILE - LINE 'E', 'F', & 'G'

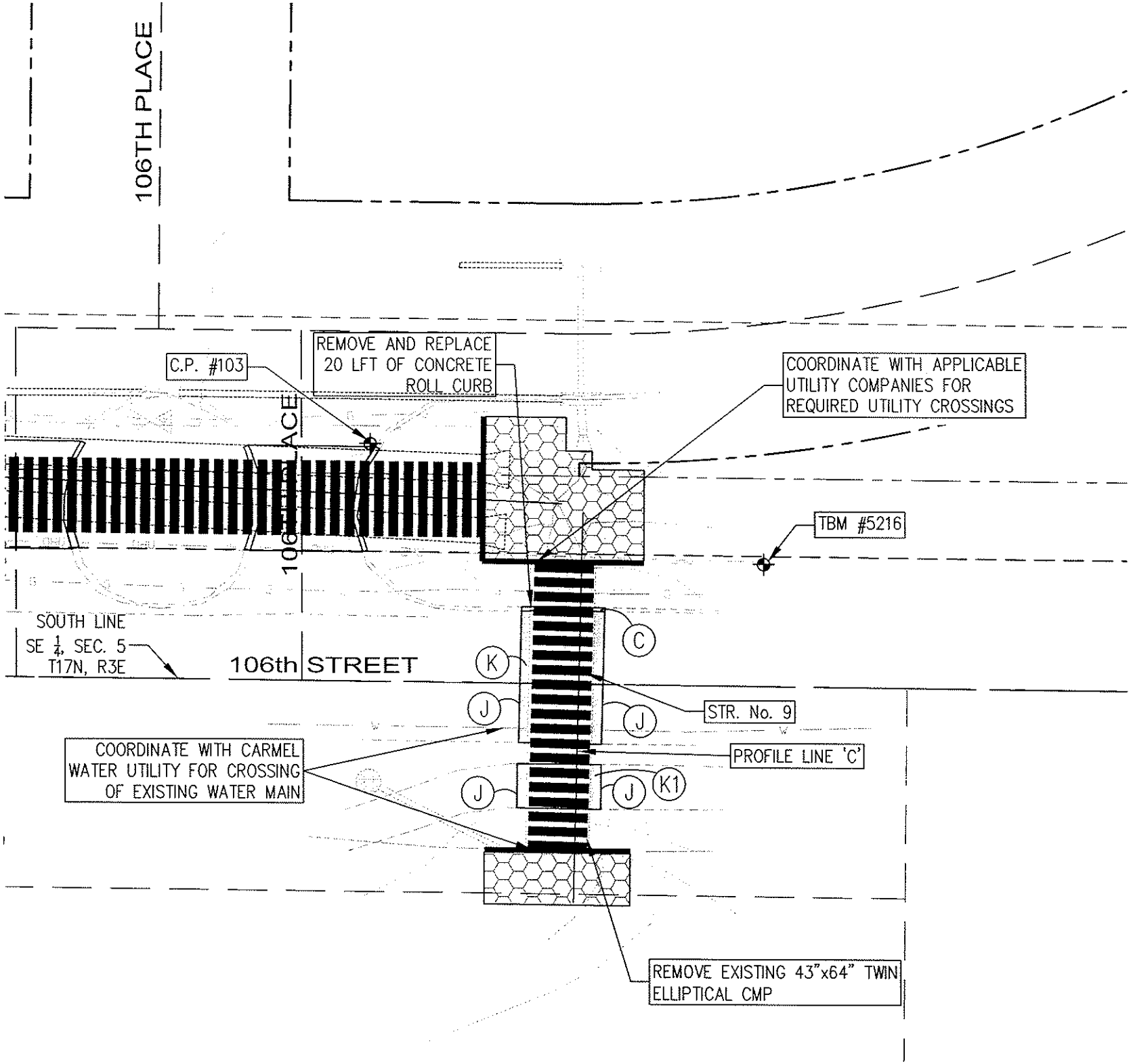
HAVERSTICK ROAD DRAINAGE IMPROVEMENTS

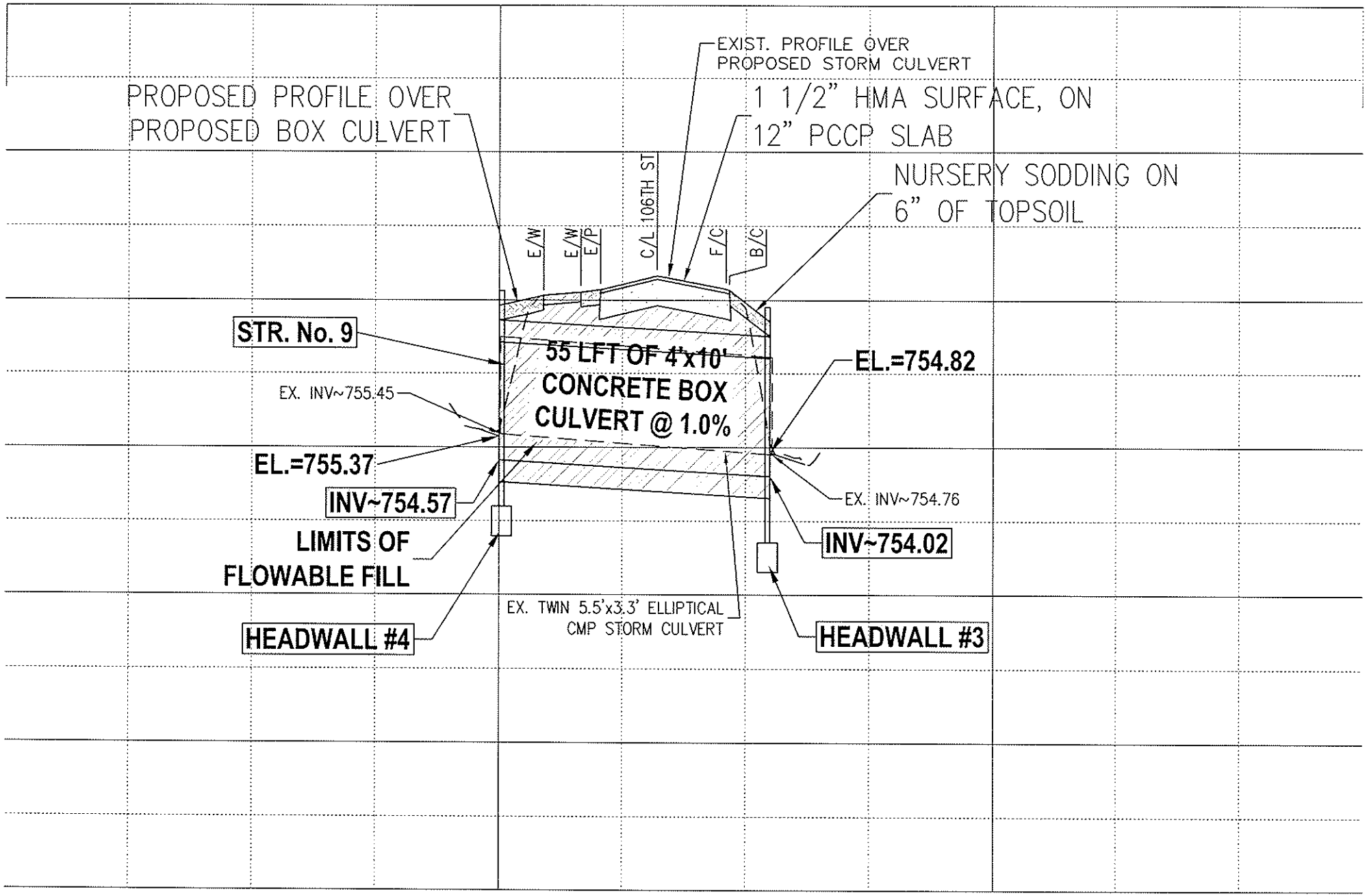
DATE AUGUST 27, 2010

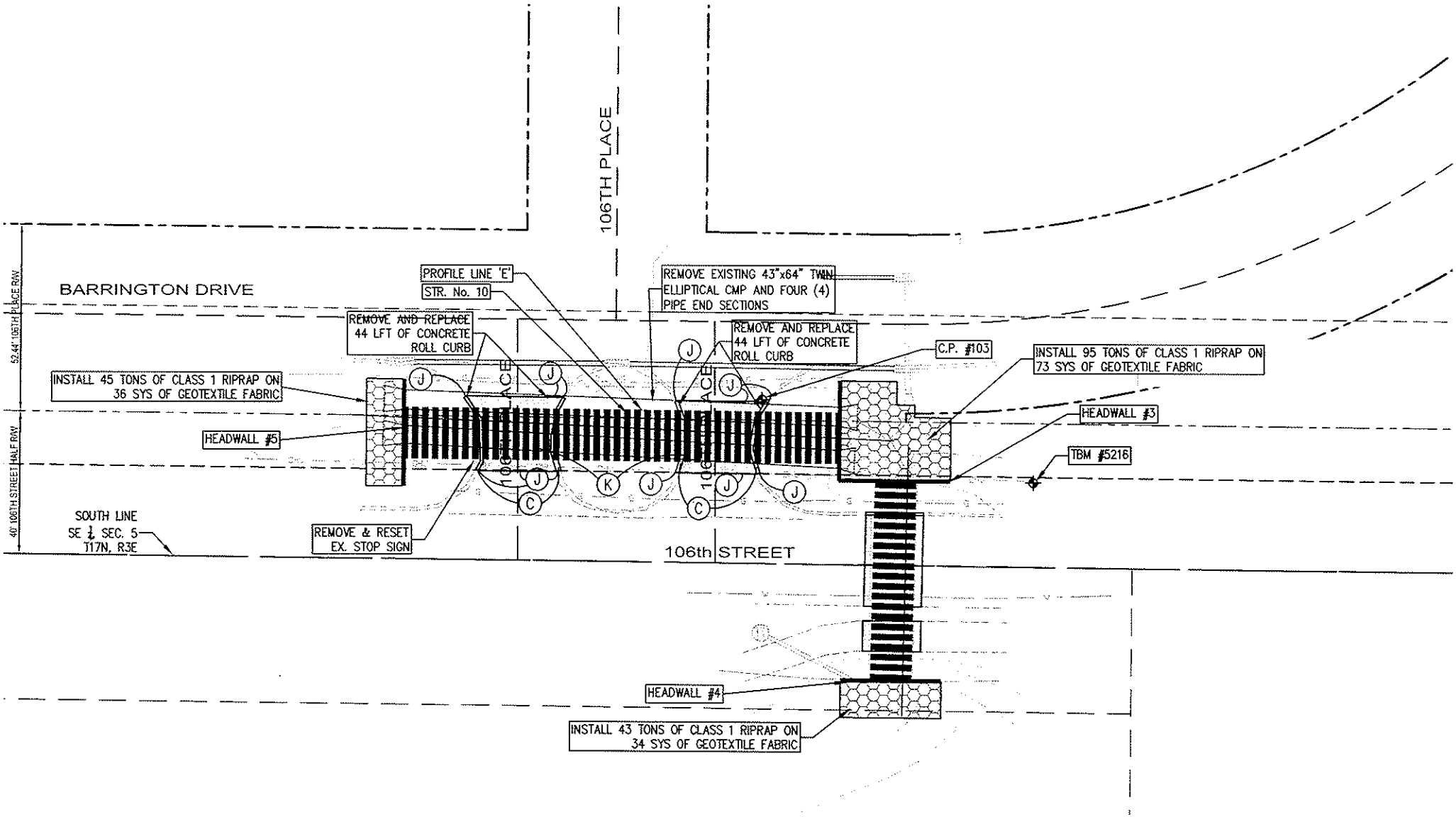
SHEET 402

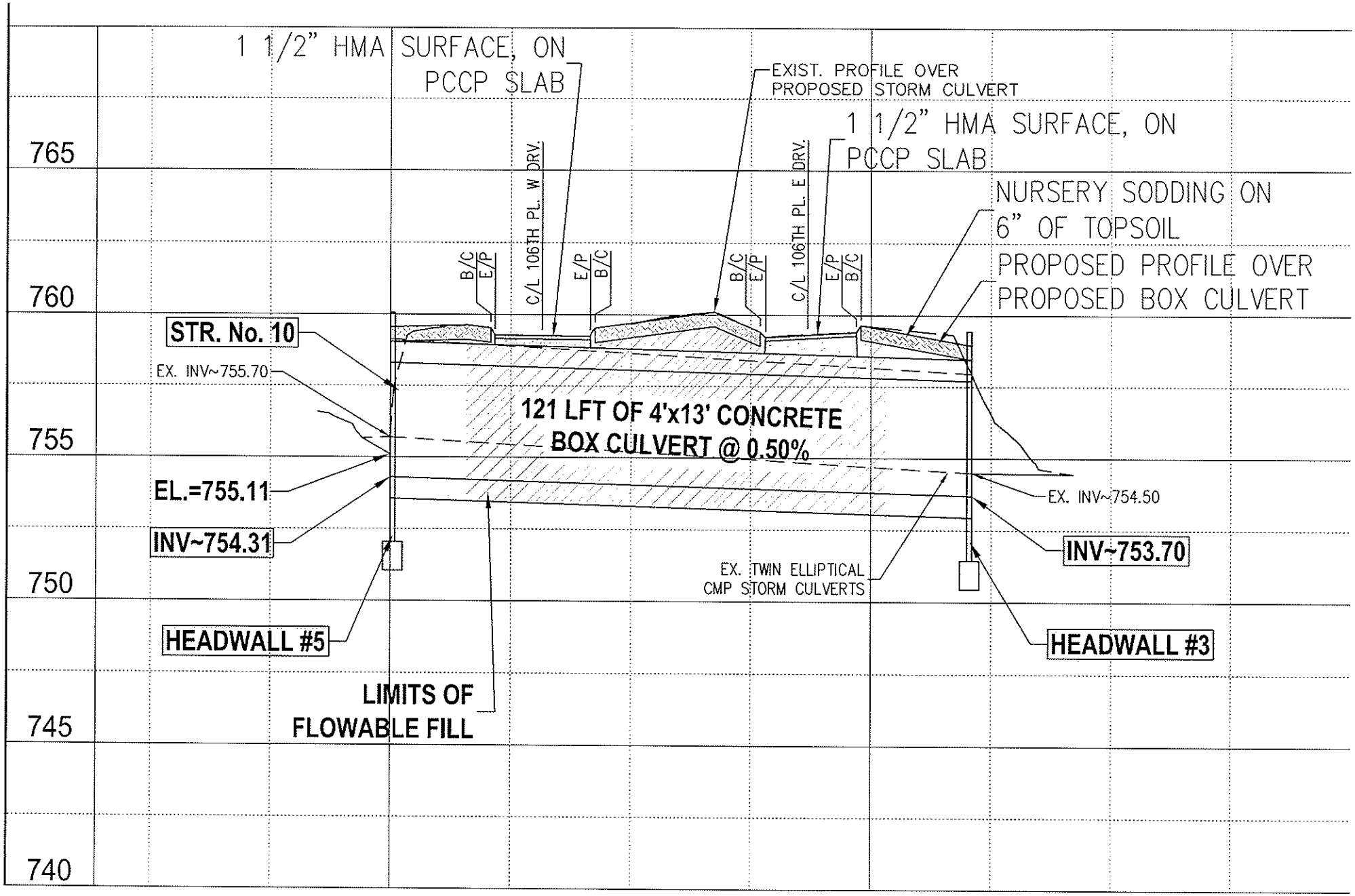

106th STREET
LEXINGTON LANE
REMOVE AND DISPOSE OF TREES AND LANDSCAPING WITHIN RIGHT-OF-WAY AS REQUIRED FOR INSTALLATION OF BOX CULVERT AND HEADWALLS.
HEADWALL #2
30' BSL
EX. HALF 25' R/W
EX. HALF 25' R/W
INSTALL 50 TONS OF CLASS 1 RIPRAP ON 39 SYS OF GEOTEXTILE FABRIC
REMOVE EXISTING END SECTION AND 20 LFT OF EX. 18"Ø HDPE.
EX. HALF 40' R/W
REMOVE EXISTING WALLS
STR. No. 8A
SOUTH LINE SE 1/4 SEC. 5 T17N, R3E
SE COR SE 1/4 SEC. 5 T17N, R3E
COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR REQUIRED UTILITY CROSSINGS
K
STR. No. 8
LINE 'A'
J
J
C.P. #201
EAST LINE, SE 1/4, SEC. 5, T
REMOVE EXISTING 43"x64" TWIN ELLIPTICAL CMP AND FOUR (4) PIPE END SECTIONS
PROFILE LINE 'B'
J
D
C.P. #102
J
EX. HALF 40' R/W
REMOVE AND REPLACE 10 SYS OF CONCRETE SIDEWALK
HEADWALL #1
TBM #1693
INSTALL 88 TONS OF CLASS 1 RIPRAP ON 68 SYS OF GEOTEXTILE FABRIC
J
REMOVE 63 SYS OF EXISTING CONCRETE

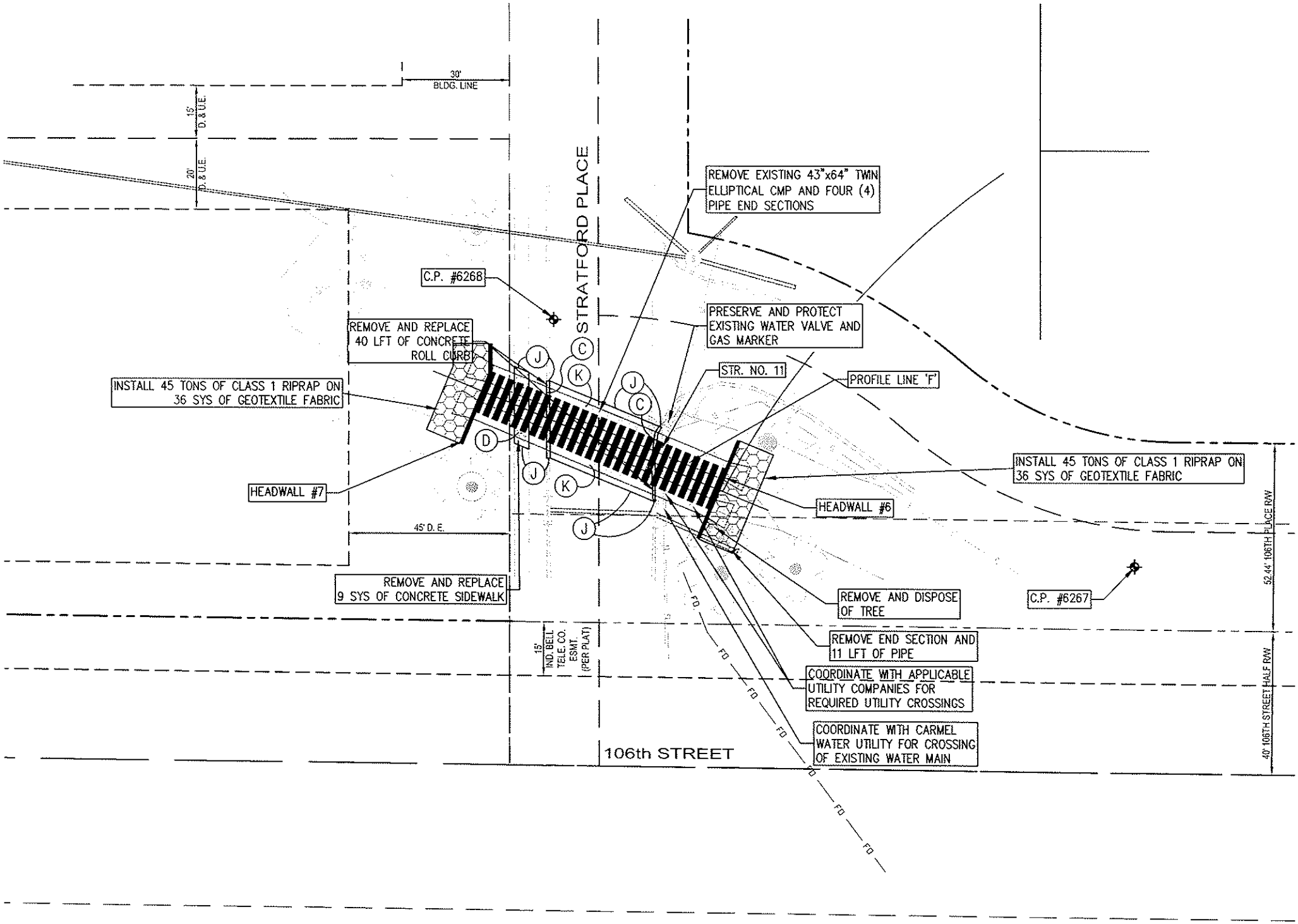

765
760
755
750
745
740
735
730
NURSERY SODDING ON
6" OF TOPSOIL
1 1/2" HMA SURFACE, ON
12" PCCP SLAB
C/L HAVERSTICK RD.
EXIST. PROFILE OVER
PROPOSED STORM CULVERT
PROPOSED PROFILE OVER
PROPOSED BOX CULVERT
STR. No. 8
5'
E/P
E/P
5'
5'
E/W
E/W
5'
EL.=751.59
100 LFT OF 4'x14' CONCRETE
BOX CULVERT @ 0.84%
EL.=750.75
EX. INV~752.37
INV~750.79
INV~749.95
HEADWALL #2
HEADWALL #1
EX. TWIN 5.2'x3.4' ELLIPTICAL
CMP STORM CULVERT
EX. INV~751.25
LIMITS OF
FLOWABLE FILL
NOTE:
STR. No's. 8 & 9 TO BE
EMBEDDED 0.80'

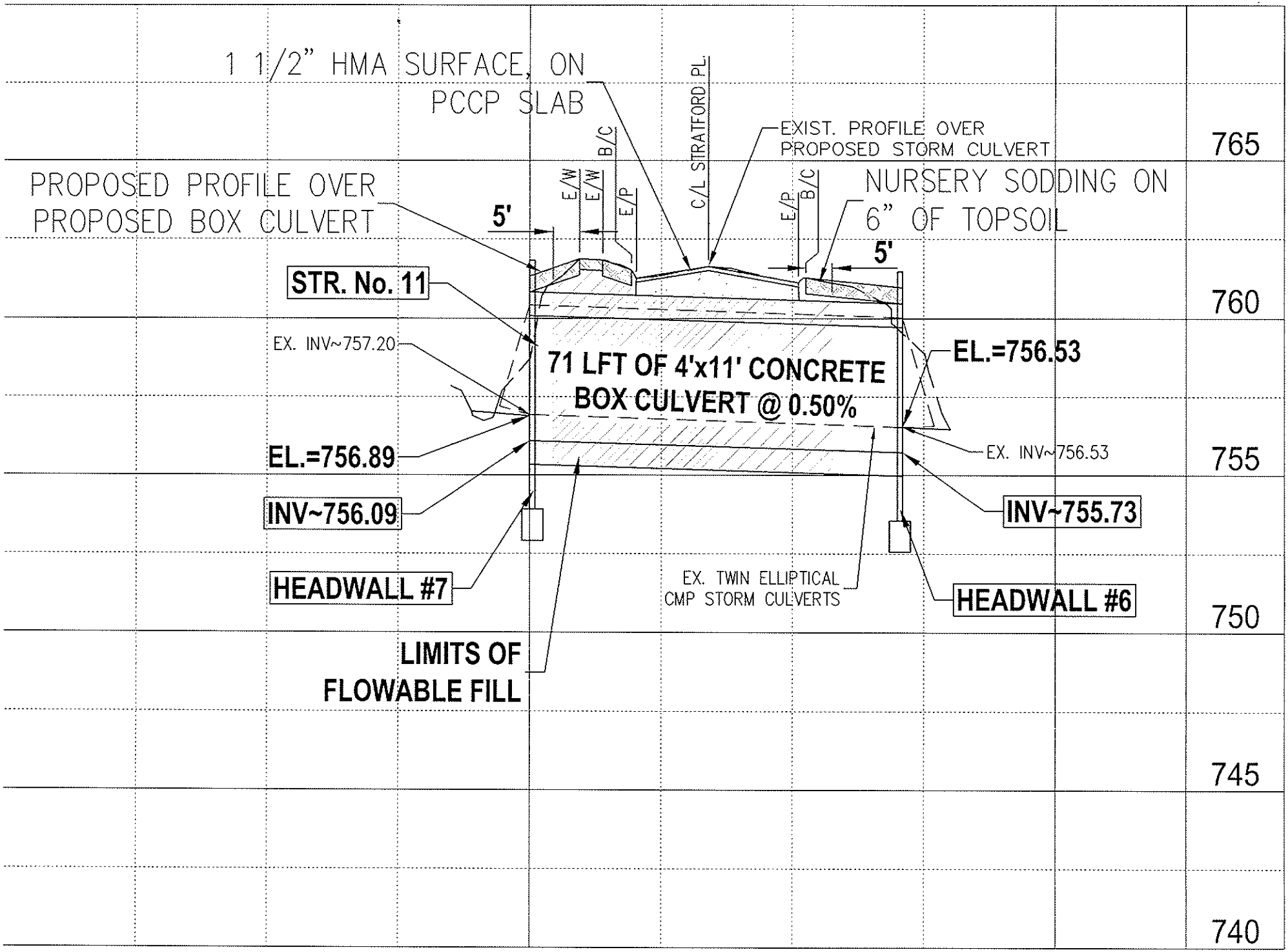

106TH PLACE
REMOVE AND REPLACE
20 LFT OF CONCRETE
ROLL CURB
C.P. #103
COORDINATE WITH APPLICABLE
UTILITY COMPANIES FOR
REQUIRED UTILITY CROSSINGS
TBM #5216
SOUTH LINE
SE 1/4, SEC. 5
T17N, R3E
106th STREET
C
K
J
J
STR. No. 9
PROFILE LINE 'C'
COORDINATE WITH CARMEL
WATER UTILITY FOR CROSSING
OF EXISTING WATER MAIN
J
J
K1
REMOVE EXISTING 43"x64" TWIN
ELLIPTICAL CMP

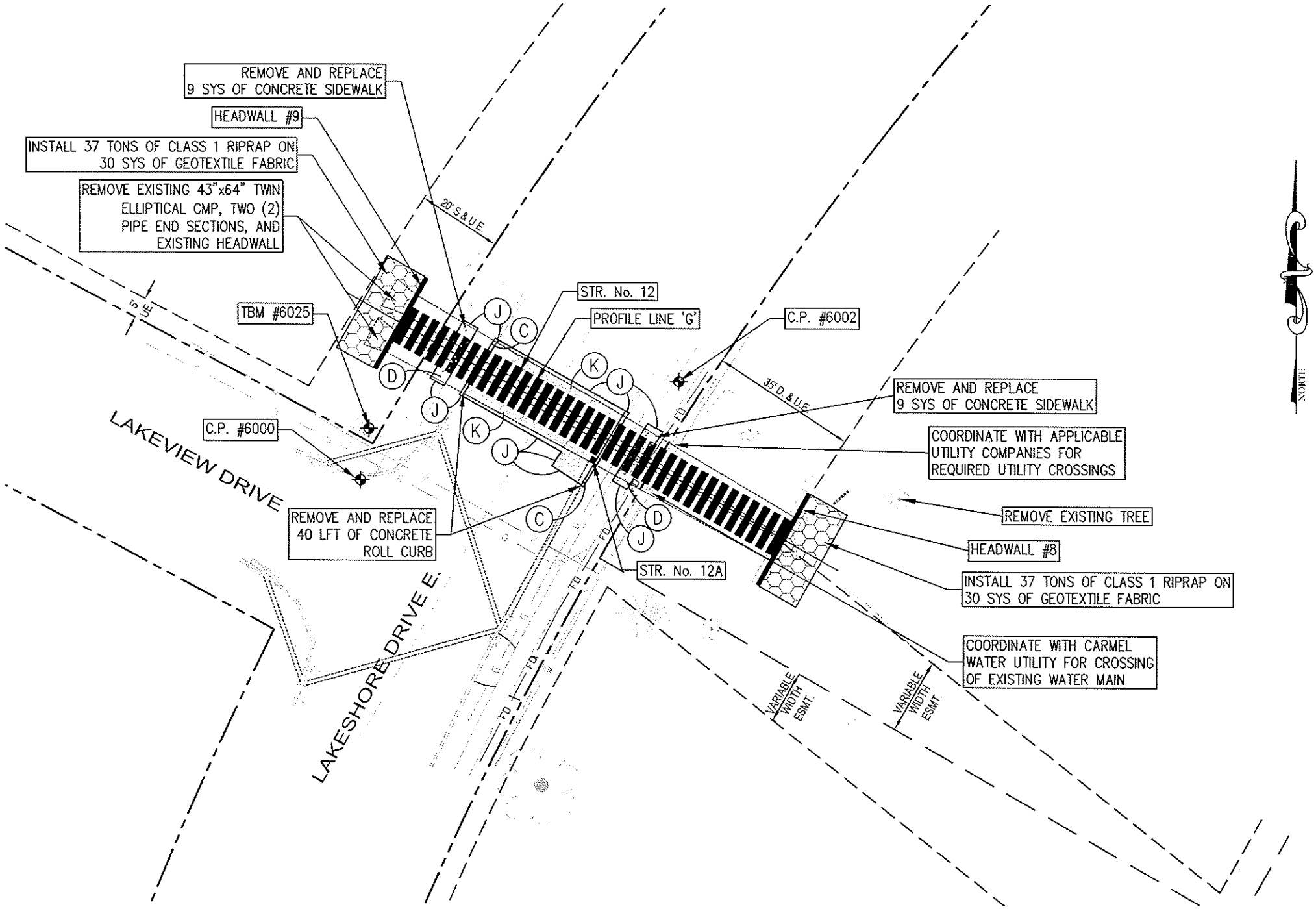

EXIST. PROFILE OVER
PROPOSED STORM CULVERT
PROPOSED PROFILE OVER
PROPOSED BOX CULVERT
1 1/2" HMA SURFACE, ON
12" PCCP SLAB
NURSERY SODDING ON
6" OF TOPSOIL
E/W
E/W
E/P
C/L 106TH ST
F/C
B/C
STR. No. 9
55 LFT OF 4'x10'
CONCRETE BOX
CULVERT @ 1.0%
EL.=754.82
EX. INV~755.45
EL.=755.37
INV~754.57
LIMITS OF
FLOWABLE FILL
EX. INV~754.76
INV~754.02
EX. TWIN 5.5'x3.3' ELLIPTICAL
CMP STORM CULVERT
HEADWALL #4
HEADWALL #3

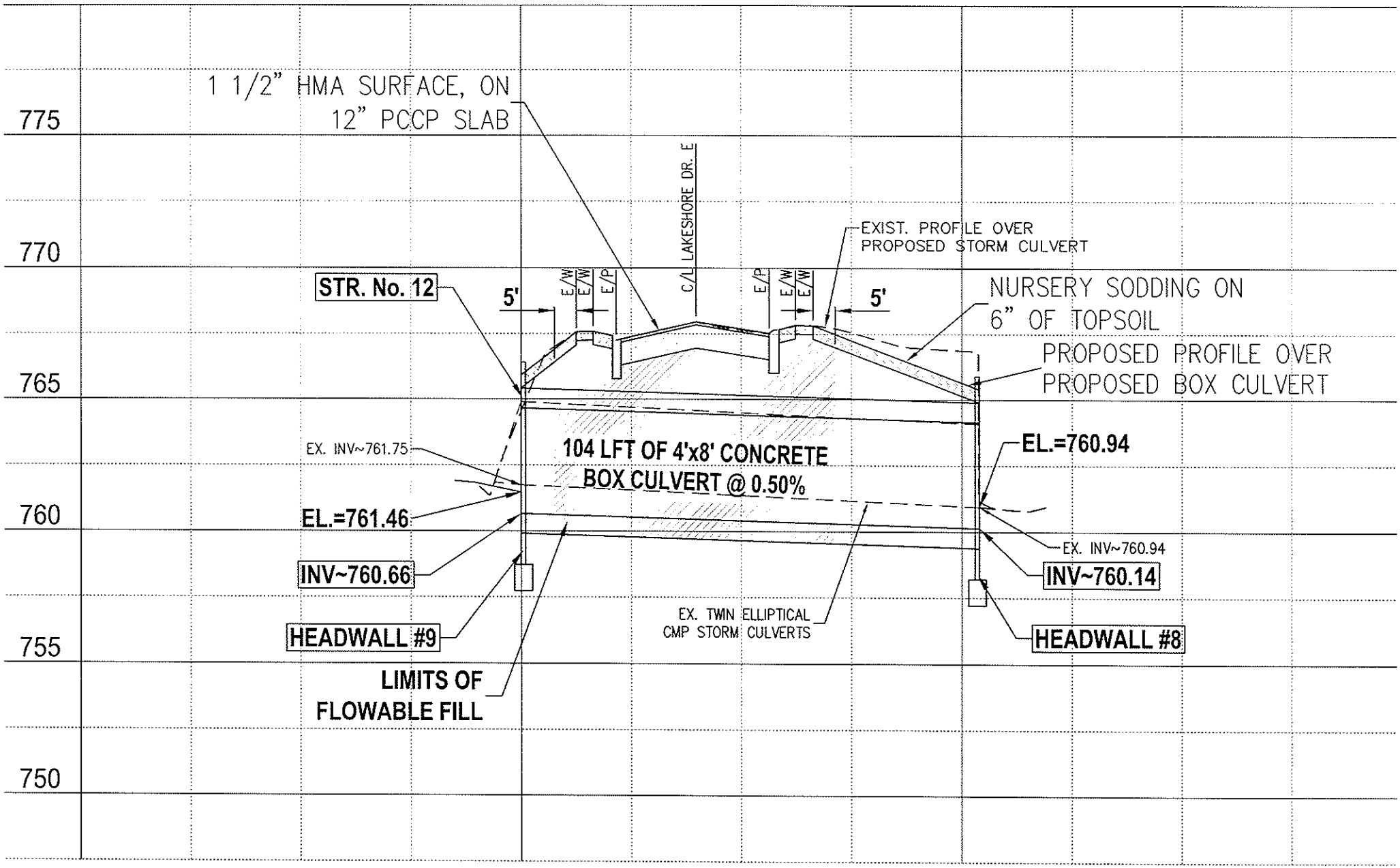

106TH PLACE
BARRINGTON DRIVE
PROFILE LINE 'E'
STR. No. 10
REMOVE EXISTING 43"x64" TWIN ELLIPTICAL CMP AND FOUR (4) PIPE END SECTIONS
REMOVE AND REPLACE 44 LFT OF CONCRETE ROLL CURB
REMOVE AND REPLACE 44 LFT OF CONCRETE ROLL CURB
C.P. #103
INSTALL 95 TONS OF CLASS 1 RIPRAP ON 73 SYS OF GEOTEXTILE FABRIC
INSTALL 45 TONS OF CLASS 1 RIPRAP ON 36 SYS OF GEOTEXTILE FABRIC
HEADWALL #5
HEADWALL #3
TBM #5216
62.44' 106TH PLACE R/W
40' 106TH STREET HALF R/W
SOUTH LINE SE ¼ SEC. 5 T17N, R3E
REMOVE & RESET EX. STOP SIGN
106th STREET
HEADWALL #4
INSTALL 43 TONS OF CLASS 1 RIPRAP ON 34 SYS OF GEOTEXTILE FABRIC


1 1/2" HMA SURFACE, ON PCCP SLAB
EXIST. PROFILE OVER PROPOSED STORM CULVERT
1 1/2" HMA SURFACE, ON PCCP SLAB
NURSERY SODDING ON 6" OF TOPSOIL
PROPOSED PROFILE OVER PROPOSED BOX CULVERT
B/C
E/P
C/L 106TH PL. W DRV.
E/P
B/C
B/C
E/P
C/L 106TH PL. E DRV.
E/P
B/C
765
760
755
750
745
740
STR. No. 10
EX. INV~755.70
121 LFT OF 4'x13' CONCRETE BOX CULVERT @ 0.50%
EL.=755.11
INV~754.31
EX. INV~754.50
INV~753.70
EX. TWIN ELLIPTICAL CMP STORM CULVERTS
HEADWALL #5
HEADWALL #3
LIMITS OF FLOWABLE FILL


30'
BLDG. LINE
15'
D. & U.E.
20'
D. & U.E.
STRATFORD PLACE
REMOVE EXISTING 43"x64" TWIN ELLIPTICAL CMP AND FOUR (4) PIPE END SECTIONS
C.P. #6268
PRESERVE AND PROTECT EXISTING WATER VALVE AND GAS MARKER
REMOVE AND REPLACE 40 LFT OF CONCRETE ROLL CURB
STR. NO. 11
PROFILE LINE 'F'
INSTALL 45 TONS OF CLASS 1 RIPRAP ON 36 SYS OF GEOTEXTILE FABRIC
J
C
K
D
HEADWALL #7
INSTALL 45 TONS OF CLASS 1 RIPRAP ON 36 SYS OF GEOTEXTILE FABRIC
HEADWALL #6
45' D. E.
REMOVE AND REPLACE 9 SYS OF CONCRETE SIDEWALK
REMOVE AND DISPOSE OF TREE
C.P. #6267
15'
IND. BELL TELE. CO. ESMT. (PER PLAT)
REMOVE END SECTION AND 11 LFT OF PIPE
COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR REQUIRED UTILITY CROSSINGS
COORDINATE WITH CARMEL WATER UTILITY FOR CROSSING OF EXISTING WATER MAIN
FO
106th STREET
52.44' 106TH PLACE R/W
40' 106TH STREET HALF R/W


1 1/2" HMA SURFACE, ON
PCCP SLAB
C/L STRATFORD PL.
EXIST. PROFILE OVER
PROPOSED STORM CULVERT
765
PROPOSED PROFILE OVER
PROPOSED BOX CULVERT
E/W
E/W
B/C
E/P
5'
E/P
B/C
NURSERY SODDING ON
6" OF TOPSOIL
5'
STR. No. 11
760
EX. INV~757.20
71 LFT OF 4'x11' CONCRETE
BOX CULVERT @ 0.50%
EL.=756.53
EL.=756.89
EX. INV~756.53
755
INV~756.09
INV~755.73
HEADWALL #7
EX. TWIN ELLIPTICAL
CMP STORM CULVERTS
HEADWALL #6
750
LIMITS OF
FLOWABLE FILL
745
740


REMOVE AND REPLACE
9 SYS OF CONCRETE SIDEWALK
HEADWALL #9
INSTALL 37 TONS OF CLASS 1 RIPRAP ON
30 SYS OF GEOTEXTILE FABRIC
REMOVE EXISTING 43"x64" TWIN
ELLIPTICAL CMP, TWO (2)
PIPE END SECTIONS, AND
EXISTING HEADWALL
20' S & U.E.
5' U.E.
TBM #6025
STR. No. 12
PROFILE LINE 'G'
C.P. #6002
35' D & U.E.
REMOVE AND REPLACE
9 SYS OF CONCRETE SIDEWALK
COORDINATE WITH APPLICABLE
UTILITY COMPANIES FOR
REQUIRED UTILITY CROSSINGS
C.P. #6000
LAKEVIEW DRIVE
REMOVE AND REPLACE
40 LFT OF CONCRETE
ROLL CURB
STR. No. 12A
REMOVE EXISTING TREE
HEADWALL #8
INSTALL 37 TONS OF CLASS 1 RIPRAP ON
30 SYS OF GEOTEXTILE FABRIC
COORDINATE WITH CARMEL
WATER UTILITY FOR CROSSING
OF EXISTING WATER MAIN
LAKESHORE DRIVE E.
VARIABLE WIDTH ESMT.
VARIABLE WIDTH ESMT.
NORTH


775
770
765
760
755
750
1 1/2" HMA SURFACE, ON
12" PCCP SLAB
C/L LAKESHORE DR. E
EXIST. PROFILE OVER
PROPOSED STORM CULVERT
STR. No. 12
5'
E/W
E/W
E/P
E/P
E/W
E/W
5'
NURSERY SODDING ON
6" OF TOPSOIL
PROPOSED PROFILE OVER
PROPOSED BOX CULVERT
EX. INV~761.75
104 LFT OF 4'x8' CONCRETE
BOX CULVERT @ 0.50%
EL.=760.94
EL.=761.46
EX. INV~760.94
INV~760.66
INV~760.14
EX. TWIN ELLIPTICAL
CMP STORM CULVERTS
HEADWALL #9
HEADWALL #8
LIMITS OF
FLOWABLE FILL

TS 10 TEMPORARY PUMPAROUNDS

Installation of the concrete box culverts shall utilize a dry construction for work within the channel. A dam shall be constructed upstream of the proposed culverts at the distances specified on the plans, utilizing non-sediment producing one-ton sandbags. The water flow shall be diverted with pumping operations. Proper dewatering bags shall be used during pumping. Discharge of dewatering directly in the waterway is not allowed. Scheduling of work shall account for materials to be readily available at the jobsite. Natural flow shall be restored as soon as possible with the proposed improvements in place.

Temporary Pump Around Details:

- *Each culvert installation shall utilize one six inch pump with the length of 6-inch pipe as noted on the plans.*
- *Sump pits utilizing perforated pipe 18" min. diameter surrounded by #8 stone to allow filtering shall be used at the end of the intake end of the pump hose.*
- *The pumps shall be in place for the installation of the concrete box, concrete headwall and riprap at each crossing. Temporary pumping shall begin prior to any site disturbing activities within the channel.*
- *A backup six inch pump shall be on site at all times for each crossing.*
- *Pumps shall be checked every 24 hours for maintenance needs.*
- *Pumps shall be placed in spill containment berms or earthen dikes around the pumps to contain any spills.*
- *Heavy rainfall events shall require the use of two six inch pumps. Extra heavy rainfall events will overflow the dam and run through the construction area. Construction activities will cease until the construction area has been dewatered.*
- *The temporary dams shall be constructed of non-sediment producing one ton sandbags.*
- *The discharge outlet of the pumps shall utilize dewatering bags located on a twenty foot by eight foot area of revetment riprap near the downstream channel area. A riprap spillway shall be used at the channel bank. The dewatering bag shall be inspected every 24 hours to ensure proper function and potential cleanout. Any silt present in the riprap area shall be removed.*
- *The discharge outlet of the pumps may be outlet into a contained roll off box before outletting onto the riprapped discharge area.*
- *Any necessary dewatering within the work area shall utilize pumping operations with dewatering bags dissipating onto the riprapped area prior to entering the channel.*
- *At the completion of temporary pumping, the temporary dam and riprap discharge area shall be removed. The proposed improvements as detailed on the plans shall be put in place at these locations.*

All costs for the installation of the temporary pumparound, sandbag dam, riprap discharge area, optional roll off box, pumps, and pumping operations shall be included in the cost of Temporary Pumparound.

TS 11 ADDITIONAL MATERIAL HANDLING AND SPILL PREVENTION PLAN

A. Purpose

The purpose of this plan is two fold: 1. To help protect the health and safety of those working on the site as well as the environment. 2. Preventing the contamination of storm water runoff. Pollutants generated onsite may include gasoline, diesel fuel, oils, grease, paints, pesticides, nutrients, concrete washout, soil, solvents, paper, plastic, Styrofoam, metals, glass and other forms of liquid or solid wastes. This plan outlines procedures to help prevent health and safety issues, contamination of storm water by onsite pollutants, help prevent fuel and chemical spills and provide a response procedure should a spill occur.

B. Prevention and Readiness

1. The contractor or responsible party will prepare a contact list in the event of a spill on the site. The contact list will have names and contact numbers. The contact list will specify first responders and a chain of command. Include information on what circumstances require the initiation of the contact list and chain of command.
2. The contractor/owner shall maintain a list of qualified contractors, Vac-trucks, tank pumpers and other equipment or businesses qualified to do clean-up operations. Absorbent materials and supplies need to be available onsite in sufficient quantities to address minor spills. All employees need to be educated on the proper application of the absorbent materials.
3. All maintenance and equipment operators must be aware and trained for prevention of spills. A continuing education program is required for new employees and emphasizing the importance to all employees.
4. All materials used in the course of a cleanup will be disposed in a manor approved by Indiana Department of Environmental Management.
5. Using water to flush spilled material will not be permitted unless authorized by a state, federal, or local agency. Tarps can be used to cover spilled material during rain events.

C. Spill Response

Minor – Small spills that typically involve oil gasoline, paint, hydraulic fluid etc. Minor spills can be controlled by the first responder at the discovery of the spill.

- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean-up spill material and any subsequently contaminated soil and dispose of properly.

Semi-significant Spills – Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:

- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean-up spills and dispose of properly. Spills on impervious surfaces should be contained with a dry absorbent. Spills on clayey soils should be contained by constructing an earthen dike and should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if this spill could be a safety issue.
- Contact supervisors and designated inspectors immediately
- Contaminated solids to be removed to an approved landfill.

Major or Hazardous Spills – More than ten gallons, there is the potential for death, injury or illness to humans or animals or has the potential for surface or groundwater pollution.

- Control or contain the spill without risking bodily harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system.
- Immediately contact the local Fire Department at 911 to report any hazard material spill.
- Contact supervisors and designated inspectors immediately. Other county or municipal officials *(list as needed)* responsible for storm water facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the Department of Environmental Management, Office of Emergency Response 1-888-233-7745. The following information should be noted for future reports to IDEM or the National Response Center.
    - Name, address and phone number of person making the spill report
    - The location of the spill
    - The time of the spill
    - Identification of the spilled substance
    - Approximate quantity of the substance that has been spilled or may be further spilled
    - The duration and source of the spill
    - Name and location of the damaged waters
    - Name of spill response organization
    - What measures were taken in the spill response
    - Other information that may be significant

Additional regulation or requirements may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is given by Emergency Response.

D. The following procedures and practices will help prevent unnecessary spills

I. Vehicle and Equipment Fueling

Description and Purpose:

- Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Limitations:

- Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling.

Implementation:

- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping-off" of fuel tanks.
- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- Dedicated fueling areas should be protected from stormwater run-on and runoff, and should be located at least 50 feet away from the downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.
- Protect fueling areas with berms and dikes to prevent run-on, runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Inspection and Maintenance

- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.
- Immediately clean up spills and properly dispose of contaminated soils.

II. Solid Waste Management

Description of Purpose:

- Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications:

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction.
- Packaging materials including wood, paper, and plastic.
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products.
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes,
- Construction waste including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts. Styrofoam and other materials send transport and package construction materials.

Implementation:

The following steps will help keep a clean site and reduce stormwater pollution:

- Select designated waste collection areas onsite.
- Inform trash-hauling contractors that you will accept only watertight dumpsters for onsite use.
- Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.

- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acid, pesticides, additives, curing compounds) are not disposed of in dumpsters designed for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas. Solid waste storage areas should be located in areas prone to flooding or ponding.
- Locate solid waste dumpster a minimum of 50' away from storm water inlets or other drainage facilities.
- Locate dumpster on stone or earth to minimize the potential for spills or leaks to drain immediately into a drainage facility.

Inspection and Maintenance:

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly to verify continued BMP implementation.
- Inspect BMPs subject to non-stormwater discharge daily while non-stormwater discharges occur.
- Inspect construction waste are regularly.
- Arrange for regular waste collection.

III. Concrete Washout

The following steps will help reduce stormwater pollution from concrete wastes:

- Discuss the concrete management techniques described in the BMP (such as handling of concrete waste and washout) with the reddy-mix concrete supplier before any deliveries are made.
- Incorporate requirements for concrete waste management into material supplier and subcontractors' agreements.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks offsite or in designed areas only.
- Do not wash concrete trucks into storm drains open ditches, streets, or streams.
- Do no allow excess concrete to be dumped onsite, except in designed areas.

For onsite washout:

- Locate washout areas at least 50 feet from storm drains, open ditches, or water bodies.
- Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.
- Avoid creating runoff by drinking water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate.
- Do not wash sweepings form exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

IV. Vehicle Maintenance Areas

Purpose- To prevent spills during the normal maintenance of construction machinery.

Implementation- Where and when feasible, maintenance shall be preformed offsite in covered facility with an impervious floor.

- Use a dedicated site for machinery maintenance
- Site the maintenance area at least 50 feet from storm water inlets or water bodies
- Maintain clean up materials close at hand. Utilize drip pans and absorbent pads to prevent oils from reaching the soil surface.
- Inspect equipment daily for leaks or worn hoses. Repair or replace to prevent onsite spills
- Properly dispose of all fluids removed or spilled from machinery.

V. Fluids, paints, solvents and other chemicals storage and use

Purpose- To prevent spills during the use and storage of the materials

Implementation-

- Store materials in there original containers
- Maintain safety data sheets on all products
- Store materials in a weather proof/vandal resistant locker or building
- Keep materials away from flammable sources
- Provide and read instructions for the proper use and storage of all materials
- For bulk material stored onsite, provide diking or double containment in case of leaks or failures.
- No washout of solvent from paint supplies should be done near or into a storm water inlet or other drainage facility.

VI. Disposal of sediment laden water

Purpose- To prevent the purposeful discharge of sediment laden water into waters of the United States.

Implementation-

- The sediment and any other pollutant from all pumping or dewatering operations that discharge into storm sewers, wetlands, drainage ways or water bodies must be removed from the water before it's discharged.
- A suitable practice is needed at the discharge to allow the suspended solids to be removed from the water column. Slow moving water and time are needed components for an effective practice. Mechanical filters and chemical flocculants can do an excellent job of removing the fine materials.
- Sediment removal pumping bags may be used at the outlet of a pump. The bags must be sized appropriately for the amount of flow. The practice needs to be installed on erosion resistant surfaces. The outlet of the pumping bag must be erosion resistant to prevent additional sedimentation.
- Pumping operations that are moving clean water through a site are not required to have a pumping bag or similar device at the outlet. The point of discharge should be protected to prevent soil erosion.

#1 – Looking east at upstream invert of Str. #8

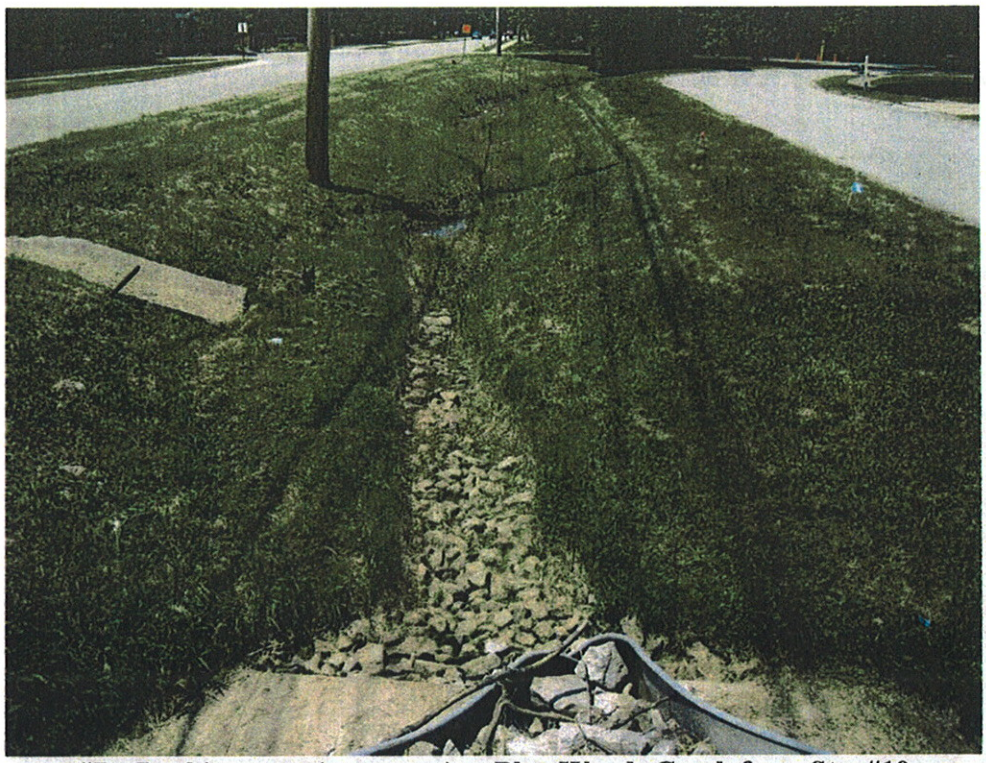
#2 - Looking west (upstream) at Blue Woods Creek from Haverstick Road

#3 – Looking west at downstream invert of Str. #8

#4 – Looking south at downstream invert of Str. #9

#5 – Looking north at upstream invert of Str. #9

#6 – Looking east at upstream invert of Str. #10



#7 – Looking west (upstream) at Blue Woods Creek from Str. #10

#8 – Looking west at downstream invert of Str. #10

#9 – Looking east (downstream) at Blue Woods Creek from Str. #10

#10– Looking east at upstream invert of Str. #11

#11 – Looking west (upstream) at Blue Woods Creek from Str. #11

#12 – Looking west at downstream invert of Str. #11

#13 – Looking east (downstream) at Blue Woods Creek from Str. #11

#14– Looking east at upstream invert of Str. #12

#15 – Looking west (upstream) at Blue Woods Creek from Str. #12

#16 – Looking west at downstream invert of Str. #12

#17 – Looking east (downstream) at Blue Woods Creek from Str. #12