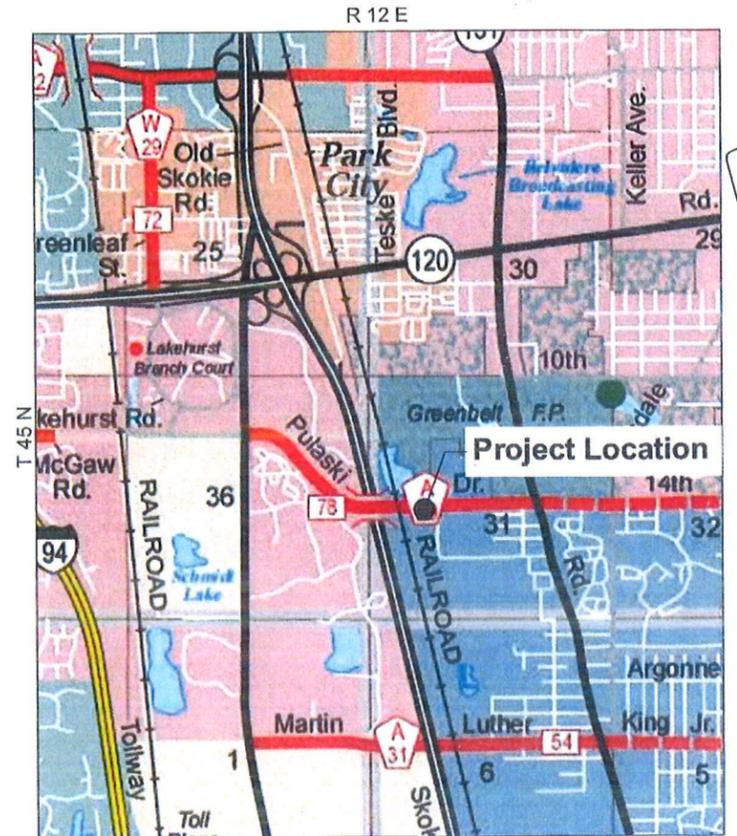


# STATE OF ILLINOIS COUNTY OF LAKE PLANS FOR PROPOSED PULASKI DRIVE CULVERT REPLACEMENT SECTION 14-00196-09-DR

PROJECT LOCATION

INDEX OF SHEETS	
SHEET No.	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES
3	SUMMARY OF QUANTITIES
4	ALIGNMENT AND TIES
5	REMOVAL PLAN
6	GRADING AND DRAINAGE PLAN
7	RESTORATION PLAN
8	EROSION CONTROL PLAN
9 - 13	DETAIL SHEETS
14	CROSS SECTION STA. 41+22
15 - 18	LCDOT STANDARD DETAILS
19 - 40	IDOT HIGHWAY STANDARDS



### IDOT HIGHWAY STANDARDS

000001-06 (8 SHT)	604001-04
001001-02	701001-02
280001-07 (2 SHT)	701006-05
602416-05 (2 SHT)	701201-04
602701-02 (2 SHT)	701901-05 (3 SHT)

### LCDOT STANDARD DETAILS

LC2051	LC6003
LC4202	LC6601
LC5402	

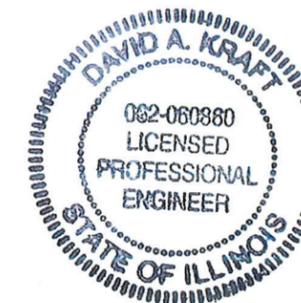
FOR UNDERGROUND UTILITY

LOCATIONS, CALL

**J. U. L. I. E.**

TOLL FREE

800-892-0123



Plans Prepared By: **Hey and Associates, Inc.**  
Engineering, Ecology and Landscape Architecture  
Office (617) 740-0888  
PROFESSIONAL DESIGN FIRM - LICENSE NO. 184002429

Signature: *[Signature]*

Date: *7/27/2016*

Illinois License No: 62-060860

Expiration Date: 11/30/17

Field: CIVIL

Approved By: *[Signature]* County Engineer

Date: *July 29, 2016*

REVISIONS / REMARKS					PULASKI DRIVE CULVERT REPLACEMENT			ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	COVER SHEET			CH78	196	14-00196-09-DR	1	40
				DAK								
				NAJ/CFR 7/27/2016								

**LCDOT GENERAL NOTES**  
(Revised 5/1/16)

1. GENERAL

- a. All construction shall be done according to the State of Illinois "Standard Specifications for Road and Bridge Construction" adopted April 1, 2016; the "Supplemental Specifications and Recurring Special Provisions, adopted April 1, 2016; the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways"; the details in these plans, and the Special Provisions included in the contract documents.
- b. The Contractor shall notify the Engineer at least 72 hours prior to beginning work and shall coordinate all construction operations with the Engineer.
- c. The Contractor shall coordinate his/her work with any adjacent projects that are or may be under construction.
- d. The Contractor shall verify all dimensions and existing conditions in the field prior to ordering materials and beginning construction. Where new work is proposed to meet existing features, it shall be the Contractor's responsibility to field check all dimensions and elevations and notify the Engineer of discrepancies before proceeding with construction.

2. SURVEY

- a. All elevations shown on these plans are based upon the North American Vertical Datum of 1988 (NAVD 88). The elevations shown on the plans are for finished grades unless otherwise noted.
- b. Where section or subsection monuments are encountered, the Engineer shall be notified before the monuments are removed. The Contractor shall carefully preserve all property marks and monuments until the owner, authorized surveyor or agent has witnessed or otherwise referenced their location.

3. REMOVAL

- a. All excess material shall be disposed of offsite on the day it is excavated or removed.
- b. The Contractor is prohibited from burning any material within or adjacent to the project limits. All excess or waste material shall be hauled away from the project site by the Contractor and legally disposed of outside the right-of-way. No extra compensation will be allowed the Contractor for any expense incurred by complying with the requirements of this note.
- c. All storm sewer, pipe culverts, guardrail and other items scheduled for removal will be examined by the Engineer, and in coordination with LCDOT Maintenance, to determine if the item is suitable for salvage. Items designated for salvage shall be carefully removed and stored at the location and in the manner designated by the Engineer. The cost of storing salvaged items shall be included in the unit cost of the item being removed. Salvageable items damaged by the Contractor shall be replaced at the Contractor's expense with new material of the same kind.

4. DRAINAGE

- a. The cost of connecting existing storm sewers to the proposed drainage system shall be included in the unit cost of the proposed drainage structure. The cost of connecting proposed storm sewer to existing structures shall be included in the unit cost of the proposed storm sewer. Additional pipe required to complete the connections will be paid for at the contract unit price for "STORM SEWER" of the type, size and class required.
- b. Unless otherwise noted on the plans, the existing drainage facilities shall remain in use during the period of construction. During construction operations the Contractor shall ensure positive site drainage at the conclusion of each day. Site drainage may be achieved by ditching, pumping, or any other method acceptable to the Engineer.

- c. The Contractor shall confirm all existing storm sewer pipe sizes and inverts prior to ordering structures. Any modification of structures due to the failure of the Contractor to perform this task shall be at the Contractor's expense and may lead to the rejection of the structure in the field if the modification is not approved by the Engineer.

d. If during construction, the Contractor encounters or otherwise becomes aware of any sewers or underdrains within the right-of-way other than those shown on the plans, he/she shall inform the Engineer, who shall direct the work necessary to maintain or replace the facilities in service and to protect them from damage during construction if maintained. Existing facilities to be maintained that are damaged because of non-compliance with this provision shall be replaced at the Contractor's own expense. Should the Engineer direct the replacement of a facility, the necessary work and payment shall be according to Sections 550 and 601, and Article 104.02 of the "Standard Specifications".

- e. When existing drainage facilities are disturbed, the Contractor shall provide and maintain temporary outlets and connections for all private or public drains, culverts, sewers or catch basins. The Contractor shall provide facilities to take in all storm water which will be received by these drains and sewers and discharge the same. The Contractor shall provide and maintain an efficient pumping plant, if necessary, and a temporary outlet. The Contractor shall be prepared at all times to dispose of the water received from temporary connections until such time as the permanent connections with sewer are built and in service. This work will not be paid for separately, but shall be included in the cost of the storm sewers and drainage structures installed as part of this project.

- f. All existing drainage facilities, headwalls and fences no longer required, in the opinion of the Engineer, shall be removed. The cost of removal of existing pipe culverts, storm sewers, drainage structures, concrete headwalls, fencing or other obstructions which interfere with the proposed improvements and which are not shown to be removed as a separate pay item shall be considered included in the cost of EARTH EXCAVATION.

g. During the construction operation when any loose material is deposited in the flow line of ditches, gutters or drainage structures so the natural flow of water is obstructed, the material shall be removed at the close of each working day.

At the conclusion of the construction operations all drainage structures shall be free from all dirt and debris. This work will not be paid for separately but shall be considered included in the unit costs of the various Temporary Erosion Control Systems e.g. INLET FILTERS, INLET PROTECTION SPECIAL, TEMPORARY DITCH CHECKS, etc.

- h. Top of frame (rim) elevations shown on the plans are only to assist the Contractor in determining the approximate overall height of the structure. Frames on all new structures shall be adjusted to the final elevations of the areas in which they are located as part of the structure cost. Any plating of the structure required for staged construction shall be included in the cost of the structure.

- i. Unless otherwise noted, locations shown on the plans are to the edge of pavement for structures in the curb and to the center of the structure for all other structures. All top of frame (rim) elevations for structures located in the curb and gutter are at the edge of pavement. See the LCDOT detail for Drainage Structure Rim Elevations and Offsets LC6003. Drainage structure flat-tops and cones shall be turned so that the frames are closest to the centerline of the lane unless otherwise noted. All flat-tops and cones are assumed to be eccentric unless otherwise noted.

- j. Stations, offsets, and invert elevations for flared end sections are given at the centerline of the outlet end of the flared end section. The flared end section shall be installed at the same slope as the outlet pipe.

k. At locations where the proposed storm sewer crosses over utilities, a 4" Styrofoam cushion shall be placed under the storm sewer when directed to do so by the Engineer. This work shall be included in the unit price for the proposed storm sewer.

- l. All field tile encountered during construction operations shall be connected to the proposed storm sewer or extended to outlet into a proposed drainage way. If this cannot be accomplished, then it shall be repaired with new pipe of similar size and material to the original line and put in acceptable operating condition. A record of the location of all field tile or on-site drain pipe encountered shall be kept by the Contractor and turned over to the Engineer upon completion of the project.

- 5. LANDSCAPING: Phosphorus Fertilizer Nutrient **shall not** be used on Lake County Highways.

6. SIGNS

- a. The Contractor will be required to relocate or remove and replace signs which interfere with his/her construction operations, and to temporarily reset all such signs during construction operations according to **Article 107.25 of the "Standard Specifications"**.

- All unused signs shall be returned to the County.

- Longer posts may be required at some temporary or permanent sign locations to maintain proper sign elevations.

- b. Permanent signing will be furnished and installed by LCDOT. Proposed permanent signs shown on the plans are for reference only.

7. UTILITIES

- a. Location information for underground utility facilities shown on the plans and/or included in the Contract Specifications represents the best information provided to LCDOT, and is only included for the convenience of the Contractor. LCDOT assumes no responsibility for the sufficiency or the accuracy of the location information provided.

- b. Before starting any excavation, the Contractor shall contact "JULIE" at 1-800-892-0123 for field locations of buried electric, telephone, gas, water, sewer, cable, etc., utility lines (minimum 48 hours notification is required).

- c. The Contractor shall be responsible for any damage or destruction of public or private property according to the special provisions and Article 107.20 of the "Standard Specifications". The Contractor shall restore such property at his/her own expense. The Contractor shall use all necessary precautions and protective measures required to maintain existing utilities, sewers, and appurtenances that must be kept in operation. In particular, the Contractor will take adequate measures to prevent the undermining of utilities and sewers which are still in service.

8. MISCELLANEOUS

- a. The Contractor shall provide temporary toilet facilities for the use of all the Contractors' personnel employed on the work site, and shall maintain same in proper sanitary condition. The temporary facilities shall include hand sanitizing stations. At the completion of the project, the facilities shall be removed and the premises left clean. The Engineer shall approve the location of the temporary toilets. The cost of this work shall be included in the unit bid prices and no additional compensation will be allowed.

- b. The Contractor shall not cross completed surface course, or existing pavement not scheduled to be removed, with construction equipment which may damage the pavement.

**LCDOT TRAFFIC CONTROL AND PROTECTION GENERAL NOTES**  
(Revised 2/4/15)

1. APPLICABLE STANDARDS

IDOT Standards: 701001-02, 701006-05, 701201-04, 701901-05

- 2. No work shall begin until the Traffic Control measures are in place. The Contractor shall at all times provide traffic protection by the application of traffic control devices according to the "Standard Specifications".
- 3. "TRUCKS ENTERING & LEAVING" signs placed on both sides of the STABILIZED CONSTRUCTION ENTRANCE spaced according to the Sign Spacing Table shown below is the minimum requirement. Additional traffic control devices as specified by the above Highway Standards and the Special Provisions shall be placed by the Contractor to the satisfaction of the Engineer. All traffic control devices shall be considered included in the lump sum pay item TRAFFIC CONTROL AND PROTECTION (SPECIAL) unless otherwise shown on the plans or in the special provisions.
- 4. All traffic control warning signs and associated signing mounted with the warning signs shall have black legends and borders on fluorescent orange reflective sheeting.
- 5. All construction signs, barricades and other devices required to control traffic shall be furnished, installed and maintained by the Contractor.
  - The Contractor shall furnish and install two weighted sand bags on each Type II barricade.
- 6. All traffic control devices shall be removed, covered or turned away from traffic immediately when they are no longer necessary. When a sign is covered, its post shall have a reflective 3 inch x 6 inch delineator installed.
- 7. The sign spacing for the above Highway Standards shall be according to the Sign Spacing Table shown below.
- 8. "ROAD WORK AHEAD" signs shall be equipped with mono-directional Type A amber flashing lights.

TRAFFIC CONTROL SIGN LAYOUT SUMMARY		
LOCATION	POSTED SPEED LIMIT	SIGN SPACING
PULASKI DRIVE	50 MPH	350'

Note: Plans do not contain Traffic Control Plan Sheets

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	
				DSG NR/LIAISON:	DAK
				PLOTTED BY:	NAJ/CFR 7/27/2016



**PULASKI DRIVE CULVERT REPLACEMENT**  
**GENERAL NOTES**

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	2	40

## SUMMARY OF QUANTITIES

ITEM #	E	S	PAY CODE	DESCRIPTION	UNIT	QUANTITY	PLAN SHEET
1		S	20200100	EARTH EXCAVATION	CU YD	439	6 (1)
2	E		21101505	TOPSOIL EXCAVATION AND PLACEMENT	CU YD	118	(2)
3			28000315	AGGREGATE DITCH CHECKS	TON	47	5
4		S	28000400	PERIMETER EROSION BARRIER	FOOT	459	5
5			28100109	STONE RIPRAP, CLASS A5	SQ YD	122	6
6			28200200	FILTER FABRIC	SQ YD	232	28
7			50102400	CONCRETE REMOVAL	CU YD	7	5 (3)
8			50105220	PIPE CULVERT REMOVAL	FOOT	18	5
9			54213445	END SECTIONS 10"	EACH	1	6
10			54215460	CAST-IN-PLACE REINFORCED CONCRETE END SECTIONS 60"	EACH	1	6,12,13
11			550A1370	STORM SEWERS, CLASS A, TYPE 5 60"	FOOT	34	6
12			55100400	STORM SEWER REMOVAL 10"	FOOT	10	5
13			55101400	STORM SEWER REMOVAL 30"	FOOT	65	5
14			55101900	STORM SEWER REMOVAL 48"	FOOT	34	5
15			55201800	STORM SEWERS JACKED IN PLACE, 60"	FOOT	128	6
16		S	59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	190	5
17			60100915	PIPE DRAINS 6"	FOOT	51	13
18			60108206	PIPE UNDERDRAINS, TYPE 2, 6"	FOOT	34	13
19			60500040	REMOVING MANHOLES	EACH	2	5
20	E	S	LC200051	REJECTED LOAD TRANSPORTATION	LOAD	5	
21		S	LC200501	MAINTENANCE OF TEMPORARY EROSION CONTROL SYSTEMS	UNIT	10,747	
22		S	LC500413	REMOVE AND SALVAGE CONCRETE FLARED END SECTION	EACH	1	5
23		S	X0321865	ANTI-GRAFFITI PROTECTION SYSTEM	SQ FT	235	(4)
24		S	X0322936	REMOVE EXISTING FLARED END SECTION	EACH	2	5
25		S	X0323265	REMOVE EXISTING RIPRAP	SQ YD	63	5
26		S	X0426200	DEWATERING	L SUM	1	
27		S	X5860110	GRANULAR BACKFILL FOR STRUCTURES	CU YD	17	13
28		S	X6020090	MANHOLES, WITH RESTRICTOR PLATE	EACH	1	6,11
29		S	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	
30		S	XX001249	ORNAMENTAL FENCE	FOOT	42	13
31		S	XX006343	SEEDING (COMPLETE)	SQ YD	4,226	7
32		S	Z0013797	STABILIZED CONSTRUCTION ENTRANCE	SQ YD	116	5,9
33		S	Z0022800	FENCE REMOVAL	FOOT	147	5
34		S	Z0055905	TEMPORARY CONSTRUCTION FENCE	FOOT	1,246	5
			E	ESTIMATED OR CONTINGENCY ITEM			
			S	SPECIAL PROVISION			

**NOTES:**

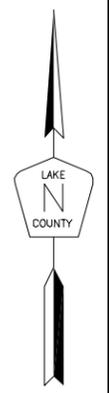
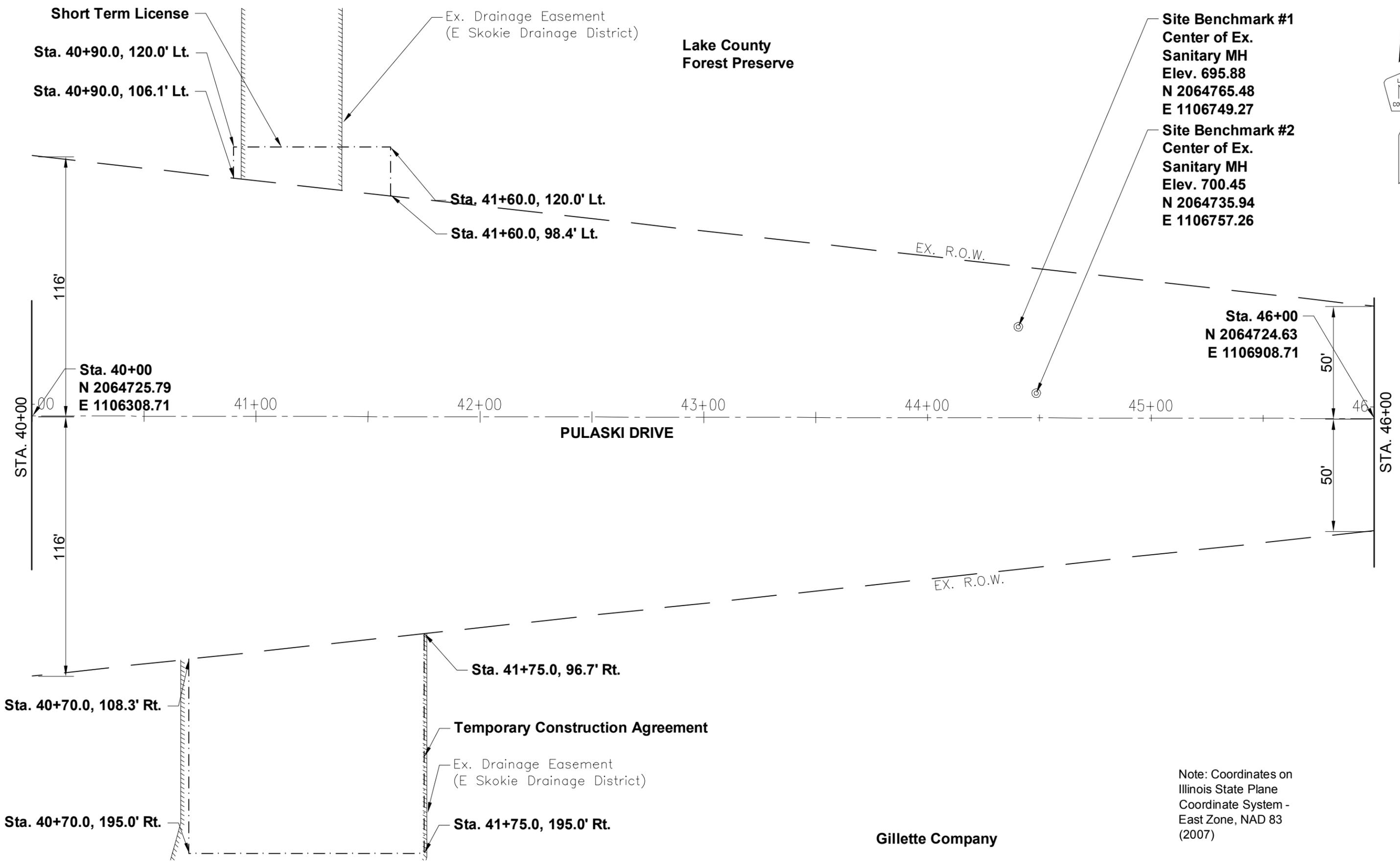
- (1) EARTHWORK INCLUDES ONLY GRADING FOR PROPOSED OUTLET AND BACKFILLING ENDS OF ABANDONED CULVERTS, APPROXIMATELY 316 CU YD EXCESS MATERIAL
- (2) ESTIMATED AT 4" DEPTH OVER GRADING AREA
- (3) REMOVAL OF EXISTING HEADWALLS AND WINGWALLS OF 96" CMP
- (4) APPLIED TO EXPOSED AREA OF CAST-IN-PLACE REINFORCED CONCRETE END SECTIONS 60"

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:
				DSG NR/LIAISON: DAK
				PLOTTED BY: NAJ/CFR 7/27/2018



**PULASKI DRIVE CULVERT REPLACEMENT**  
SUMMARY OF QUANTITIES

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	3	40



**Site Benchmark #1**  
 Center of Ex. Sanitary MH  
 Elev. 695.88  
 N 2064765.48  
 E 1106749.27

**Site Benchmark #2**  
 Center of Ex. Sanitary MH  
 Elev. 700.45  
 N 2064735.94  
 E 1106757.26

**Sta. 46+00**  
 N 2064724.63  
 E 1106908.71

**Sta. 40+00**  
 N 2064725.79  
 E 1106308.71

**Sta. 41+60.0, 120.0' Lt.**  
**Sta. 41+60.0, 98.4' Lt.**

**Sta. 41+75.0, 96.7' Rt.**

**Temporary Construction Agreement**

Ex. Drainage Easement  
 (E Skokie Drainage District)

**Sta. 41+75.0, 195.0' Rt.**

**Sta. 40+70.0, 108.3' Rt.**

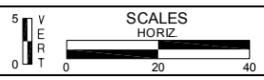
**Sta. 40+70.0, 195.0' Rt.**

**PULASKI DRIVE**

**Gillette Company**

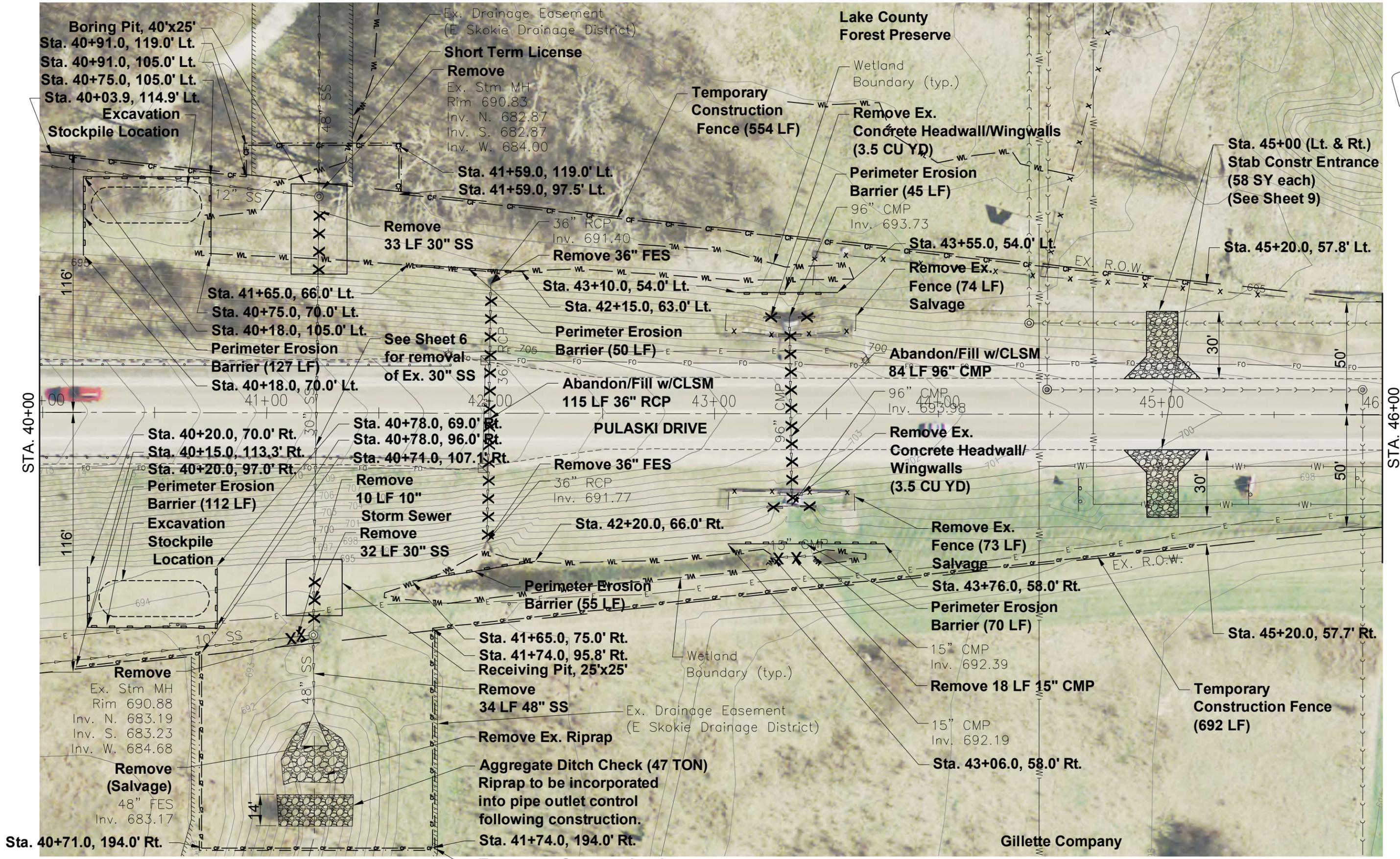
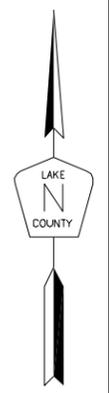
Note: Coordinates on  
 Illinois State Plane  
 Coordinate System -  
 East Zone, NAD 83  
 (2007)

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:

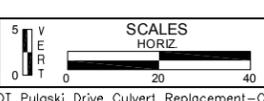


**PULASKI DRIVE CULVERT REPLACEMENT**  
 ALIGNMENT AND TIES

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	4	40

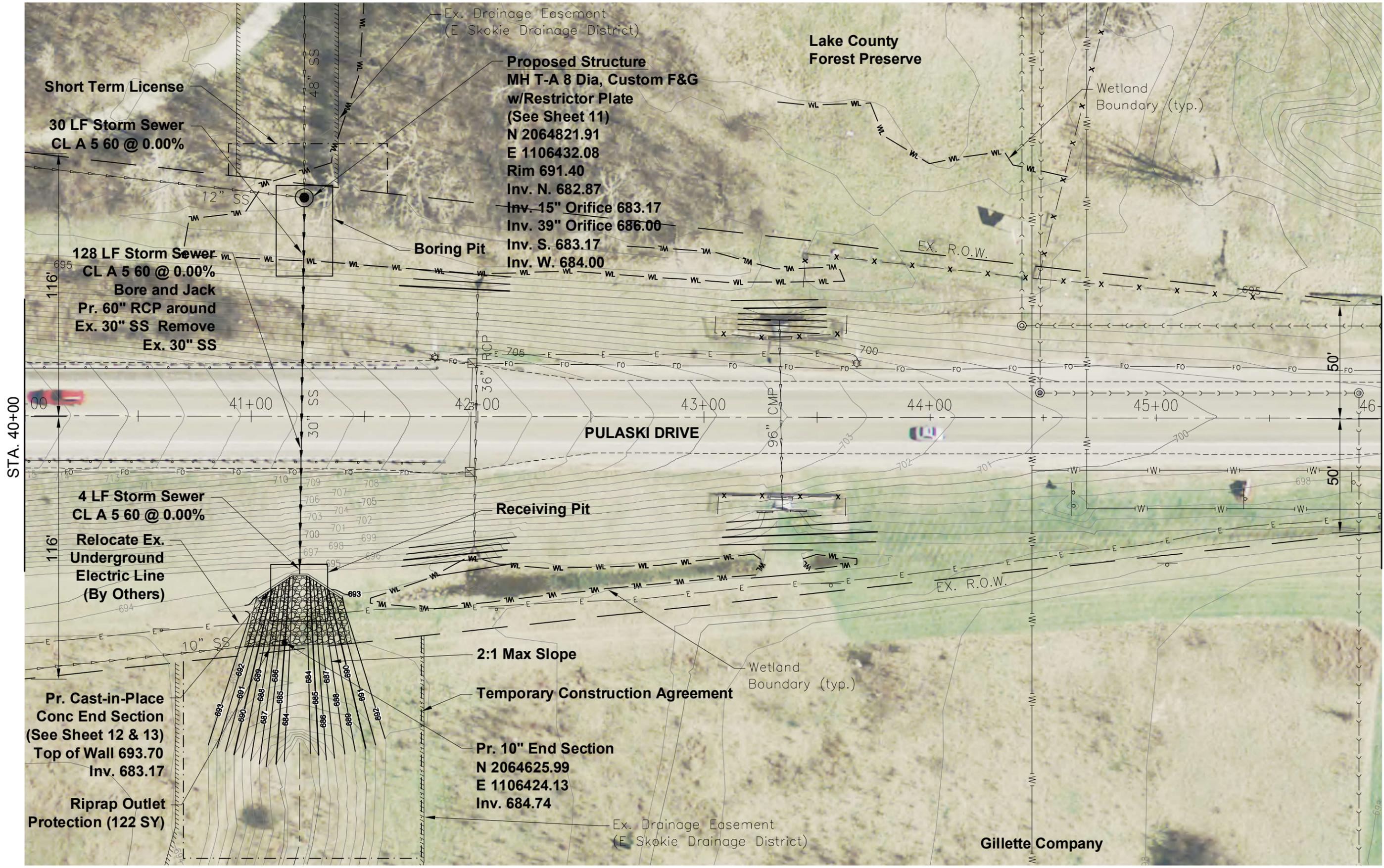


REVISIONS / REMARKS				
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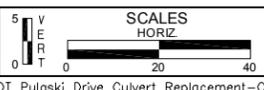


**PULASKI DRIVE CULVERT REPLACEMENT**  
REMOVAL PLAN

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	5	40

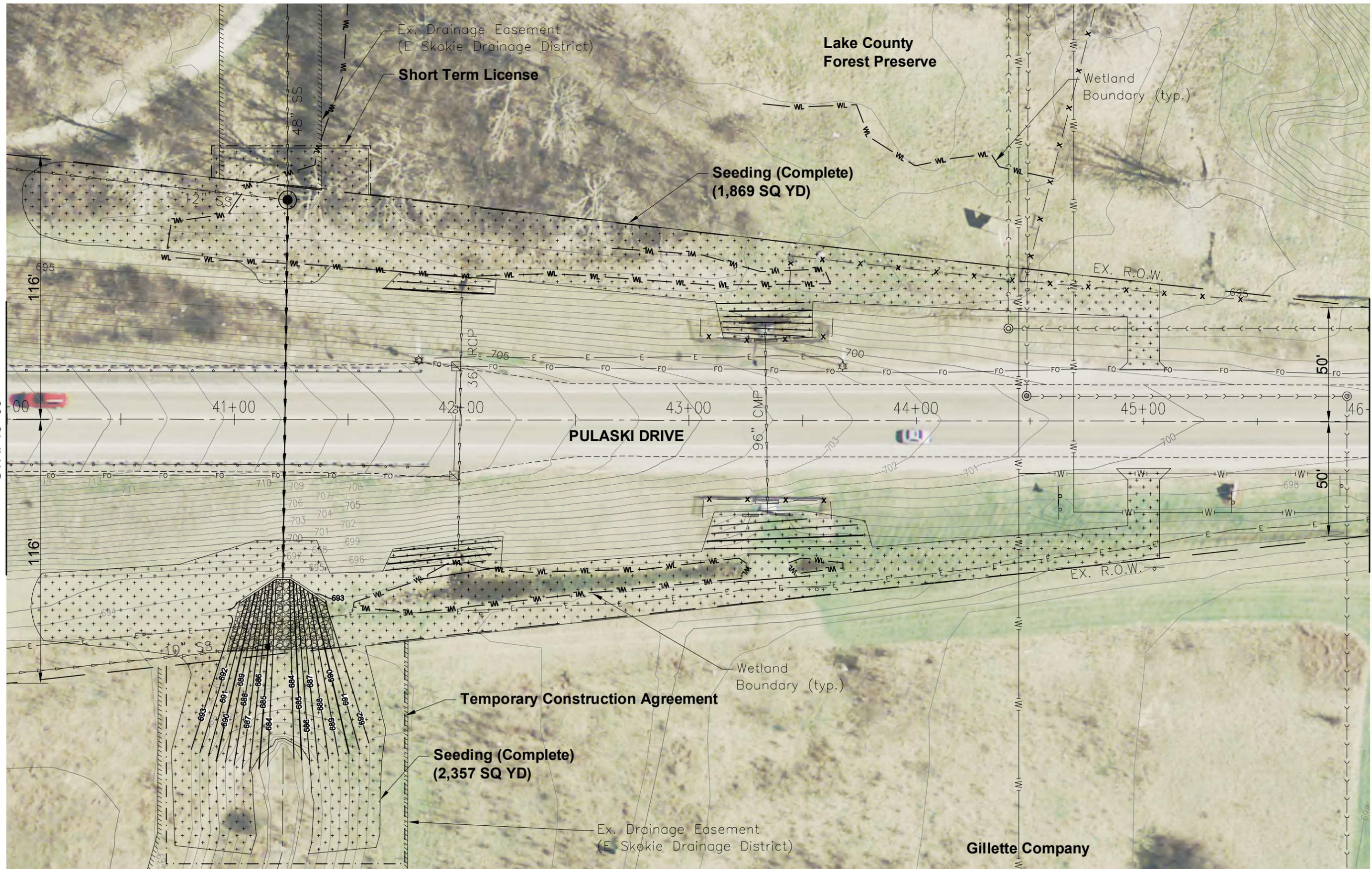


REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:

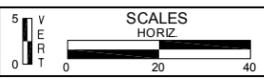


**PULASKI DRIVE CULVERT REPLACEMENT**  
**GRADING AND DRAINAGE PLAN**

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	6	40



REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:



**PULASKI DRIVE CULVERT REPLACEMENT**  
**RESTORATION PLAN**

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	7	40

# EROSION CONTROL PLAN & STORMWATER POLLUTION PREVENTION PLAN

THIS PROJECT DISTURBS 0.51 ACRES OF TOTAL LAND AREA.  
COMPLIANCE WITH THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES)  
STORMWATER PERMIT IS ONLY NECESSARY IF A PROJECT DISTURBS 1.0 OR MORE ACRES OF  
TOTAL LAND AREA; AN NPDES STORMWATER PERMIT WILL NOT BE REQUIRED FOR THIS PROJECT.

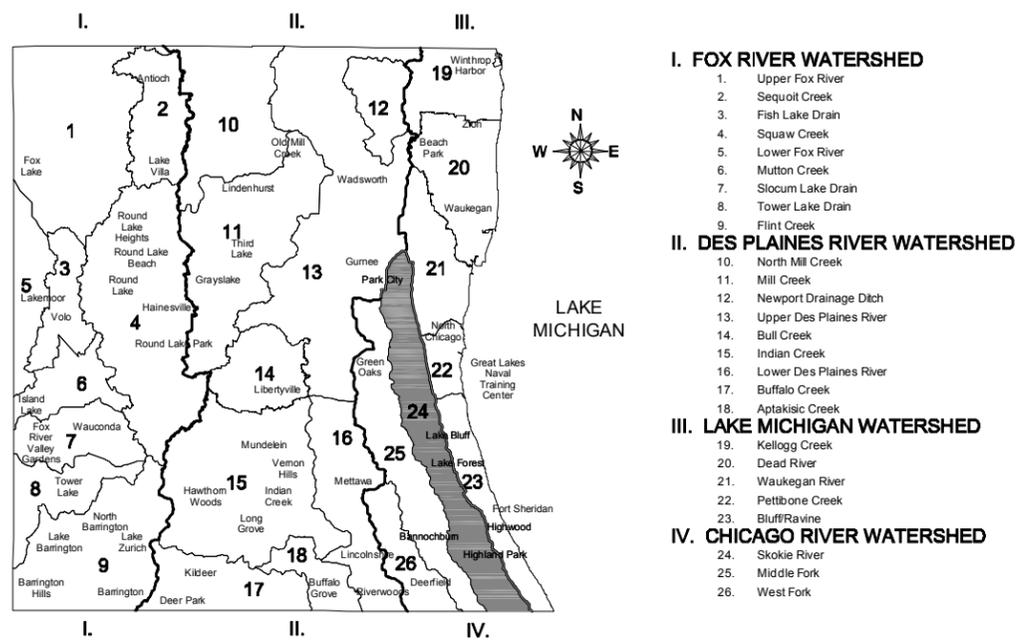
## LAKE COUNTY DIVISION OF TRANSPORTATION SOIL EROSION AND SEDIMENT CONTROL GENERAL NOTES

- A. AREAS OR EMBANKMENTS WITH 2:1 SLOPES OR STEEPER SHALL BE STABILIZED WITH SOD OR EROSION CONTROL BLANKET (SPECIAL) IN COMBINATION WITH SEEDING.
- B. ANY SEDIMENT OR SOIL TRACKED OFF THE SITE SHALL BE REMOVED BY SCRAPING OR STREET SWEEPING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CONTRACT.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RETURNING ALL EXISTING AREAS (TO REMAIN) AFFECTED BY CONSTRUCTION ACTIVITIES, EQUIPMENT, OR LABORERS TO THE ORIGINAL UNDISTURBED CONDITIONS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROTECTING ALL NEW WORK UNTIL THE COMPLETION OF THE CONTRACT.
- D. PERIMETER EROSION BARRIER SHALL BE INSTALLED AT LOCATIONS SPECIFIED IN THE PLANS AT 1 FOOT OUTSIDE THE TOE OF SLOPE OR INSIDE THE RIGHT-OF-WAY WHICHEVER IS CLOSER TO THE CENTERLINE, OR AS DIRECTED BY THE ENGINEER PRIOR TO THE START OF ANY EARTHWORK, CULVERT, OR STORM SEWER CONSTRUCTION.
- E. THE PERIMETER EROSION BARRIER SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED WITH VEGETATION. AT THIS TIME, THE PERIMETER EROSION BARRIER SHALL BE REMOVED AND AREAS DAMAGED BY THE PERIMETER EROSION BARRIER REMOVAL SHALL BE RESTORED. THE RESTORATION OF THE AREA DISTURBED BY THE PERIMETER EROSION BARRIER REMOVAL SHALL BE INCLUDED IN THE PAY ITEM OF PERIMETER EROSION BARRIER.
- F. THE INSTALLATION & REMOVAL OF PERIMETER EROSION BARRIER SHALL BE PAID FOR UNDER THE ITEM OF PERIMETER EROSION BARRIER. MAINTENANCE OF PERIMETER EROSION BARRIER SHALL BE PAID FOR UNDER THE ITEM OF MAINTENANCE OF TEMPORARY EROSION CONTROL SYSTEMS.
- G. TEMPORARY DITCH CHECKS SHALL BE CONSTRUCTED ACCORDING TO THE STANDARD DETAIL SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE DITCH CHECKS SHALL BE INSTALLED AS GRADING PROGRESSES THROUGH THE PROJECT.
- H. ALL SEEDED AREAS SHALL BE COVERED WITH EROSION CONTROL BLANKET.

## LAKE COUNTY STORMWATER MANAGEMENT COMMISSION SOIL EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

- A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:
  - UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
  - AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.
- C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.
- D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
- E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.
- F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.
- G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.
- H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURES AS APPROVED BY THE ENFORCEMENT OFFICER.
- I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.
- J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.
- L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.
- M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.
- N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.
- O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

### DRAINAGE BASINS OF LAKE COUNTY

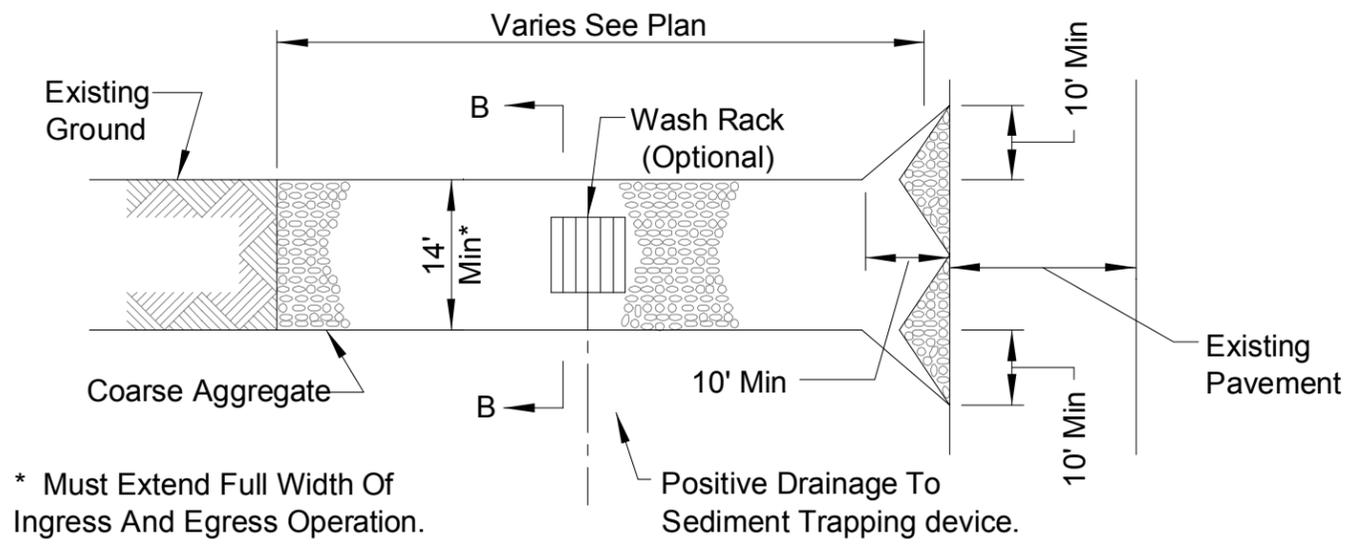


REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:
				DSG NR/LIAISON: DAK
				PLOTTED BY: NAJ/CFR 7/27/2016



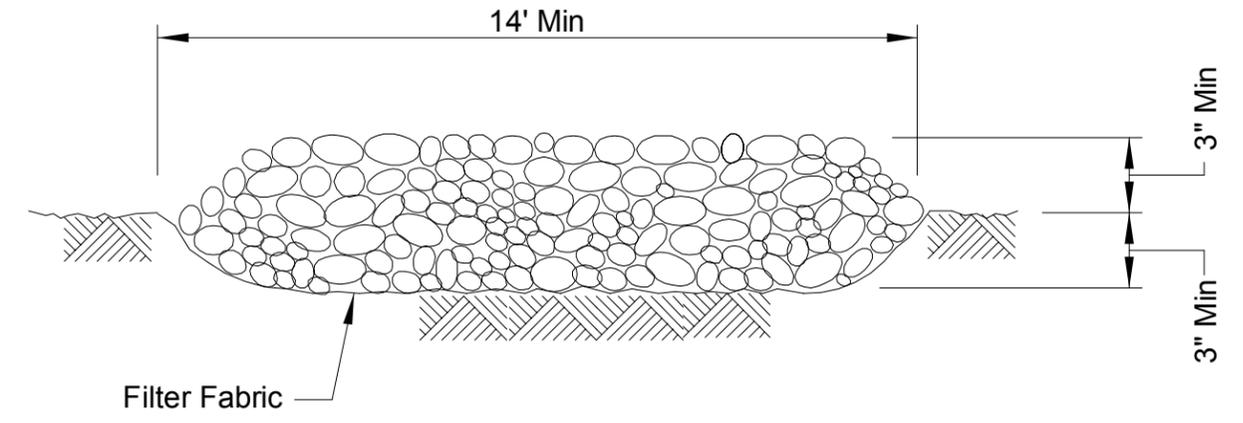
### PULASKI DRIVE CULVERT REPLACEMENT EROSION CONTROL PLAN

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	8	40

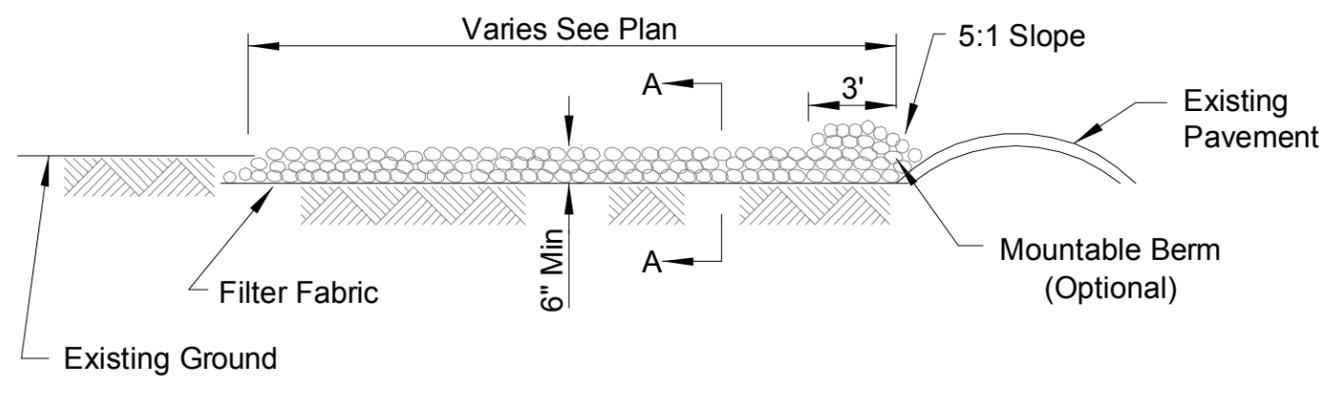


\* Must Extend Full Width Of Ingress And Egress Operation.

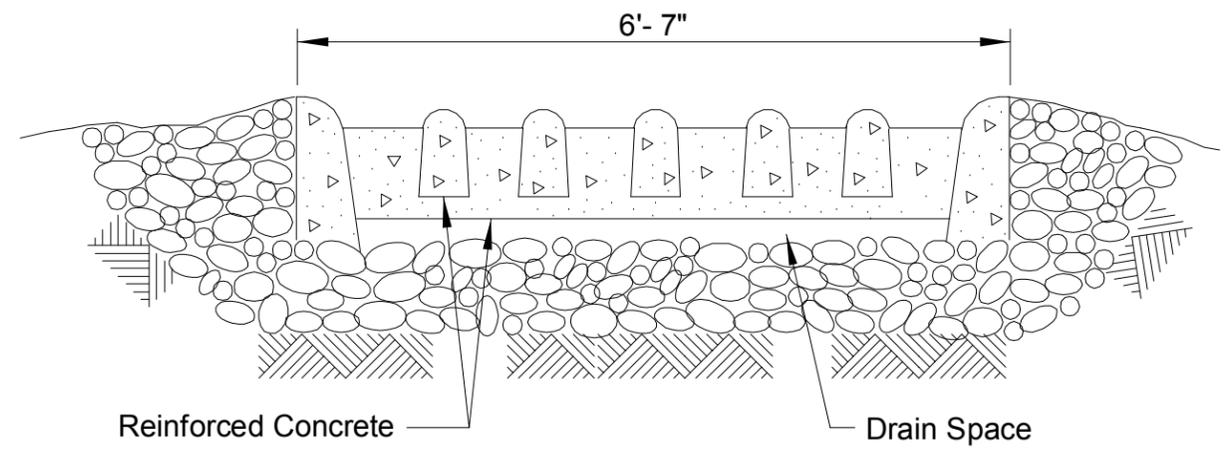
PLAN VIEW



SECTION A-A



SIDE ELEVATION



SECTION B-B

NOTES:

1. Filter fabric shall meet the requirements of material specification of Section 282 of The Standard Specifications.
2. Rock or reclaimed concrete shall meet the requirements of the specification for STABILIZED CONSTRUCTION ENTRANCE.
3. Any drainage facilities required because of washing shall be constructed according to manufacturers specifications.
4. If wash racks are used they shall be installed according to the manufacturers specifications.

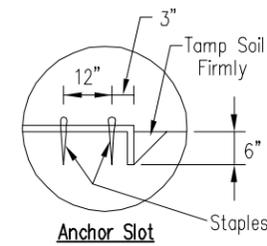
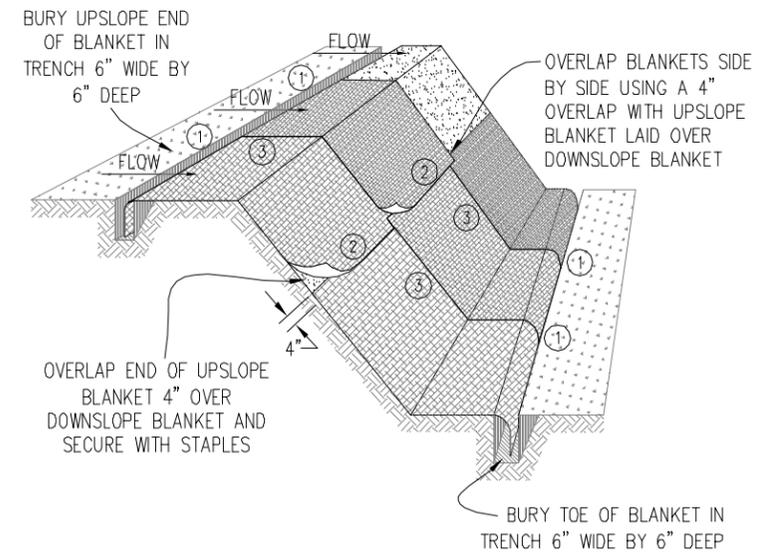
## Stabilized Construction Entrance Detail (Not to Scale)

REVISIONS / REMARKS		DATE	BY	SURVEYOR:
NO.	DESCRIPTION			
				DSG NR/LIAISON:
				DAK
				PLOTTED BY:
				INAJ/CFR 7/27/2016

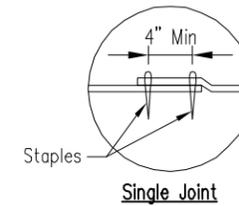


**PULASKI DRIVE CULVERT REPLACEMENT**  
DETAIL SHEET

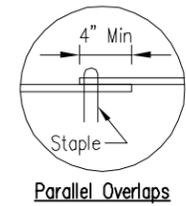
ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	9	40



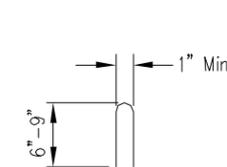
**DETAIL 1**



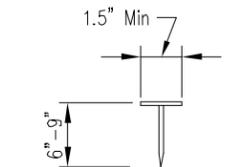
**DETAIL 2**



**DETAIL 3**



**STAPLE DETAIL**



**PUSH PIN DETAIL**

**NOTES:**

1. Staples shall be placed in a diamond pattern at 2 per s.y. for stiched blankets. Non-stiched shall use 4 staples per s.y. of material. This equates to 200 staples with stiched blanket and 400 stapels with non-stiched blanket per 100 s.y. of material.
2. Staple or push pin lengths shall be selected based on soil type and conditions. (minimum staple length is 6")
3. Erosion control material shall be placed in contact with the soil over a prepared seedbed.
4. All anchor slots shall be stapled at approximately 12" intervals.

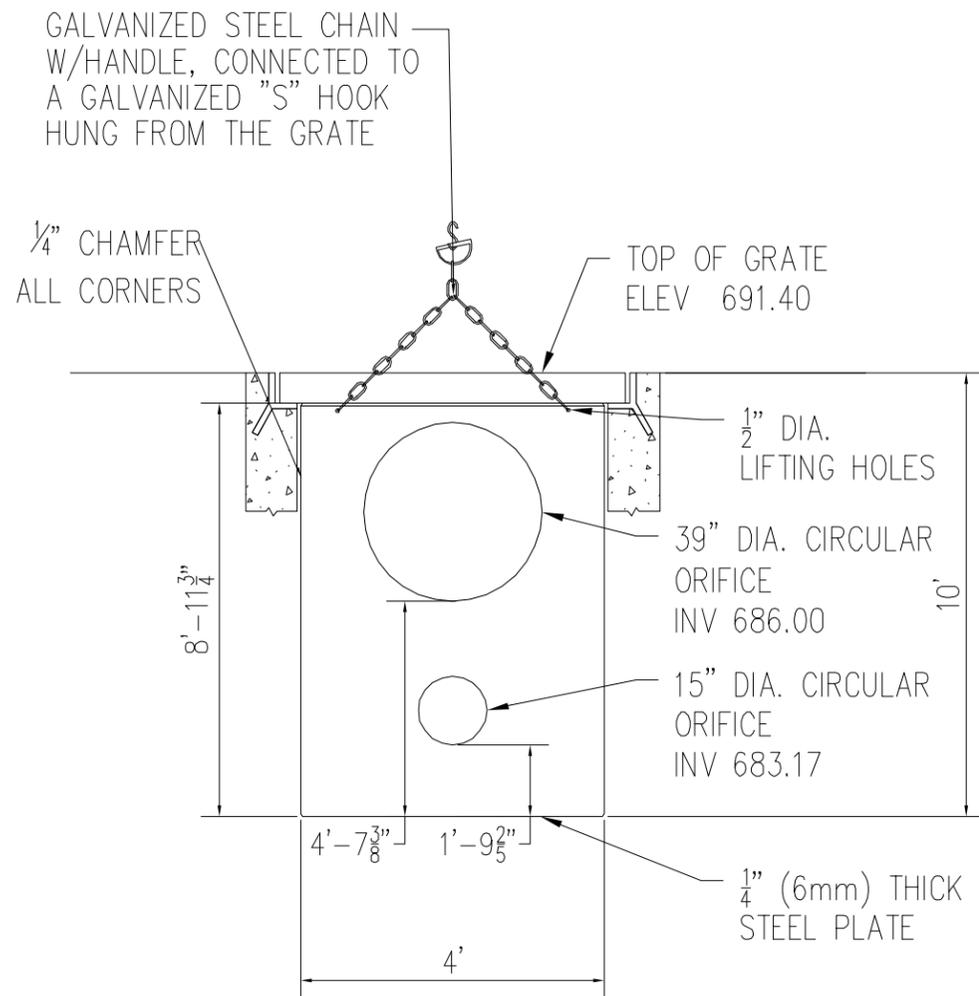
## Erosion Control Blanket & TRM Installation Detail (Not to Scale)

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:
				DSG NR/LIAISON: DAK
				PLOTTED BY: NAJ/CFR 7/27/2016



**PULASKI DRIVE CULVERT REPLACEMENT**  
**DETAIL SHEET**

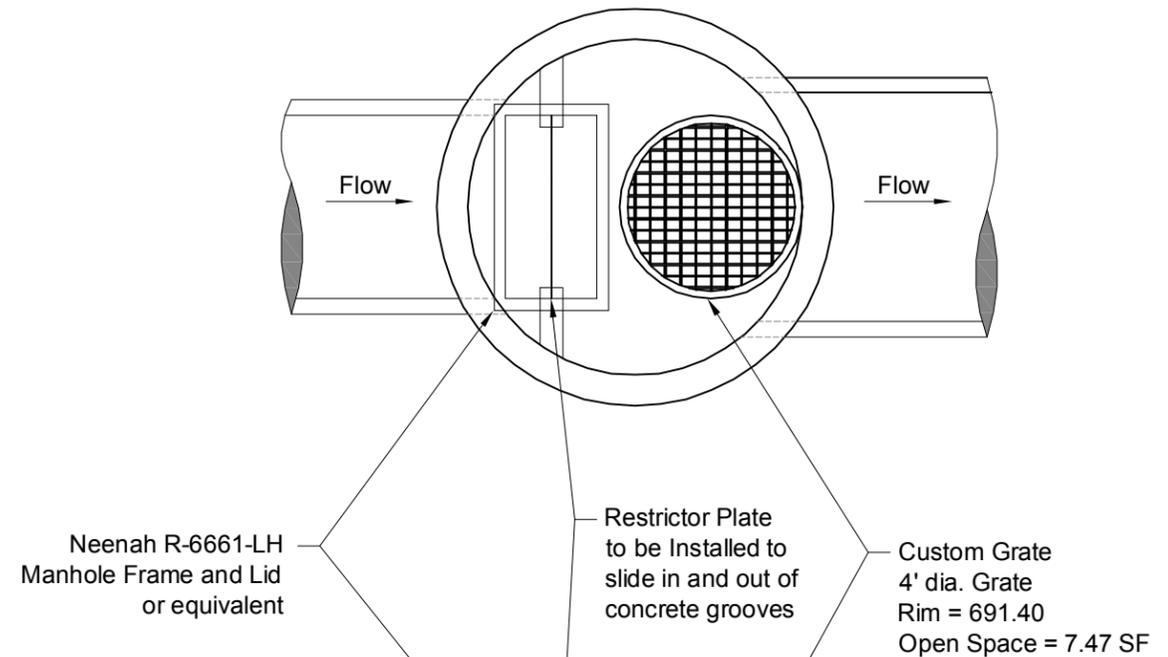
ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	10	40



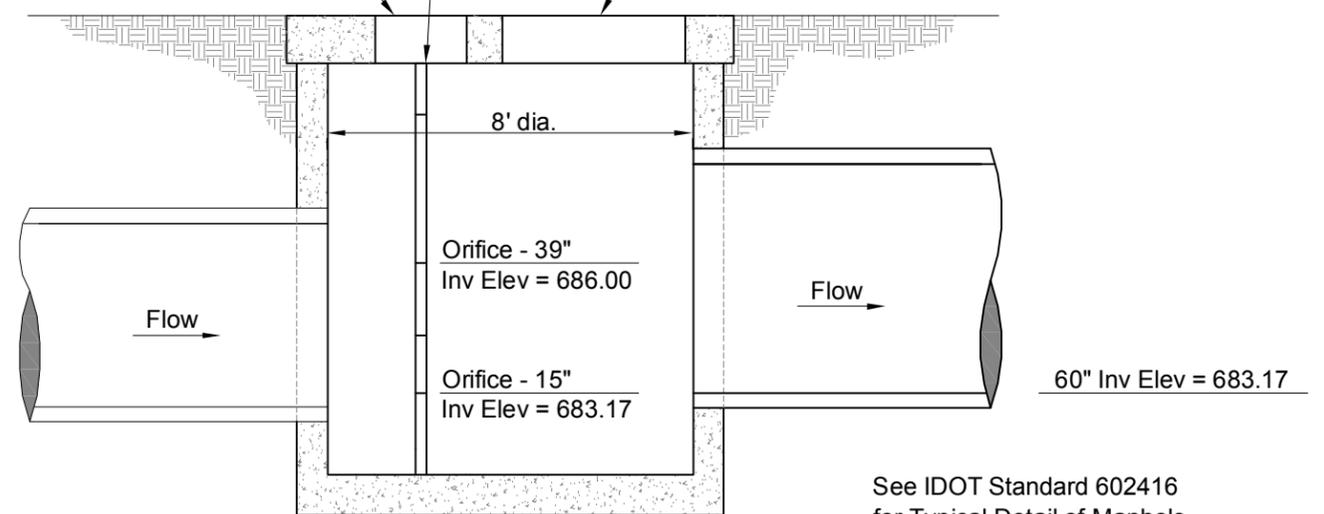
PLATE

BILL OF MATERIALS

1. 1/4" STEEL PLATE 8'-11 3/4" x 4'
2. CHAIN 11 LIN FT.
3. CHAIN CONNECTORS, 3 EACH
4. GALVANIZED STEEL HANDLE, 1 EACH
5. PRESSURE TREATED LUMBER (WATER CONTACT)  
2" x 4", 35'-11" TOTAL LENGTH
6. 3/8" DIA. x 3 1/2" LONG STAINLESS STEEL ANCHOR BOLTS, 20 EACH
7. 1/2" DIA., LEAD ANCHORS, 20 EACH
8. GALVANIZED STEEL "S" HOOK, 1 EACH



Ex. 48" Inv Elev = 682.87



See IDOT Standard 602416 for Typical Detail of Manhole, Type A, 8' Diameter

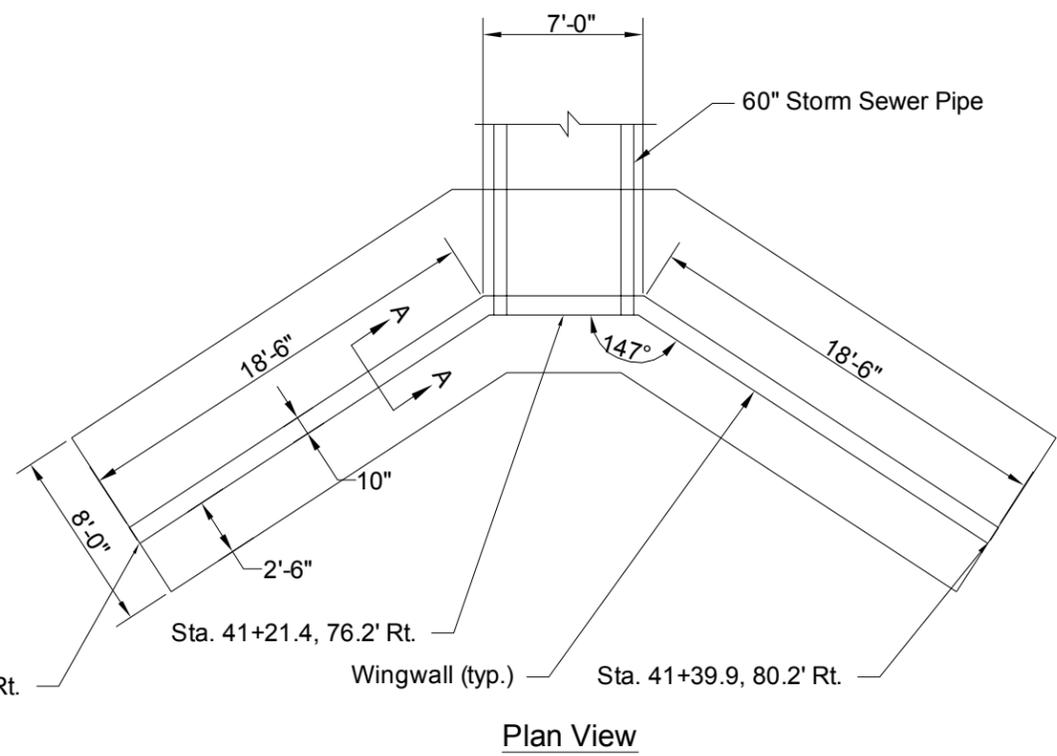
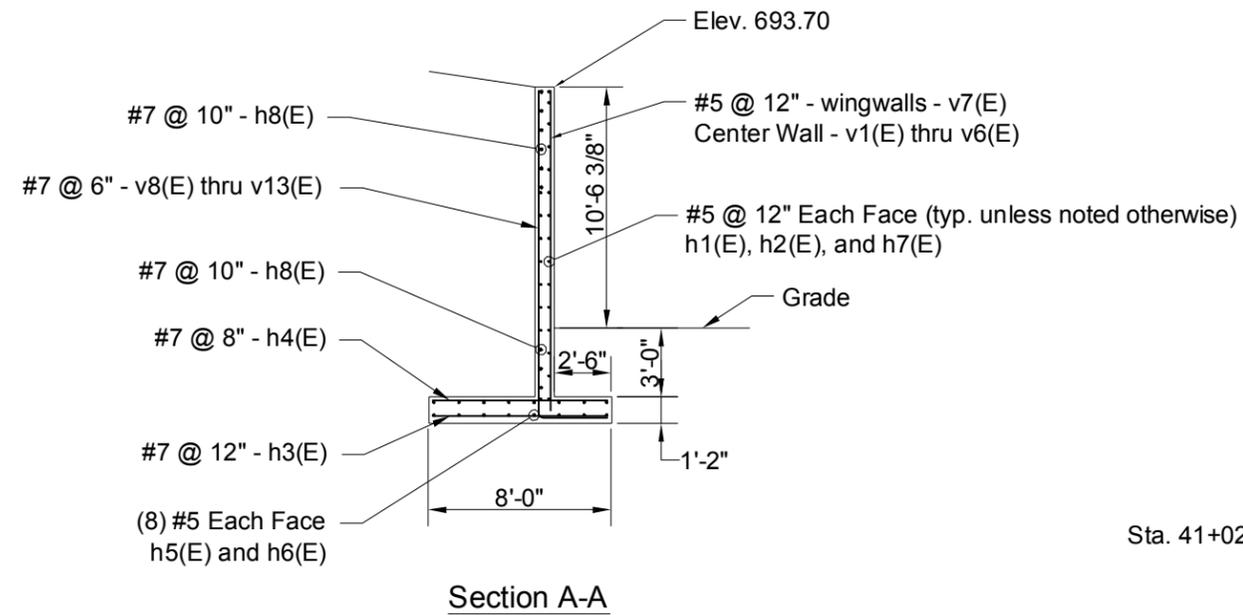
**Manhole w/ Restrictor Plate Detail**  
(Not to Scale)

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:
				DSG NR/LIAISON: DAK
				PLOTTED BY: INAJ/CFR 7/27/2016

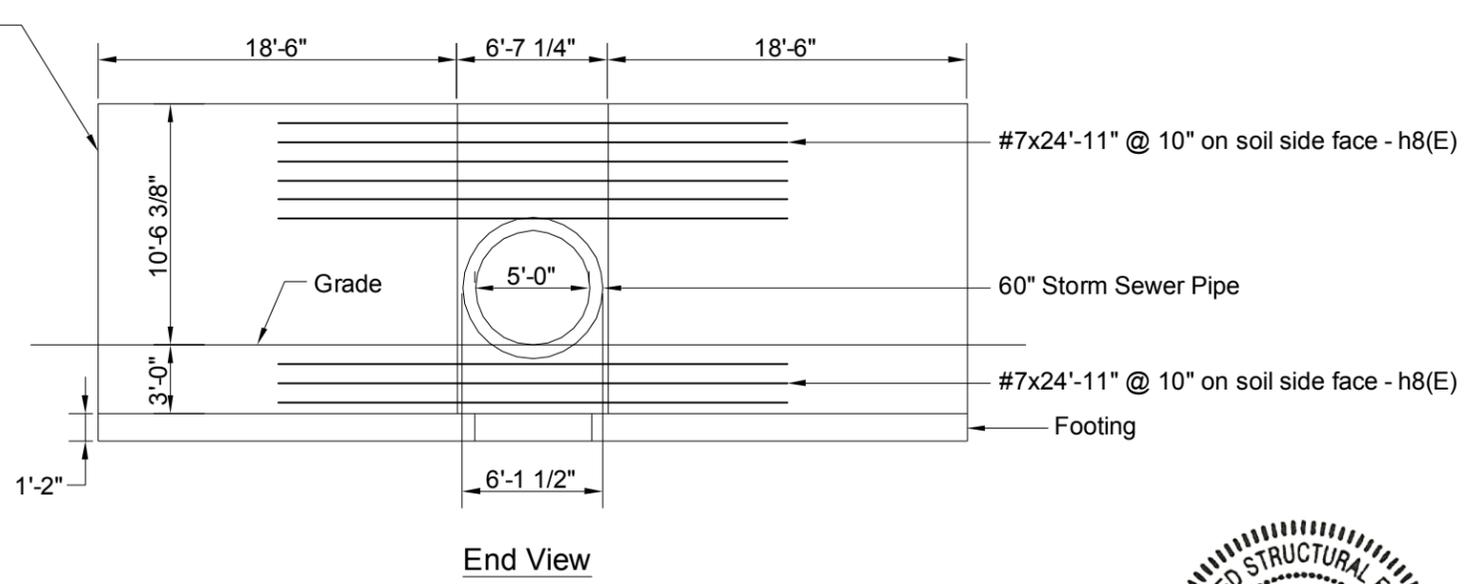
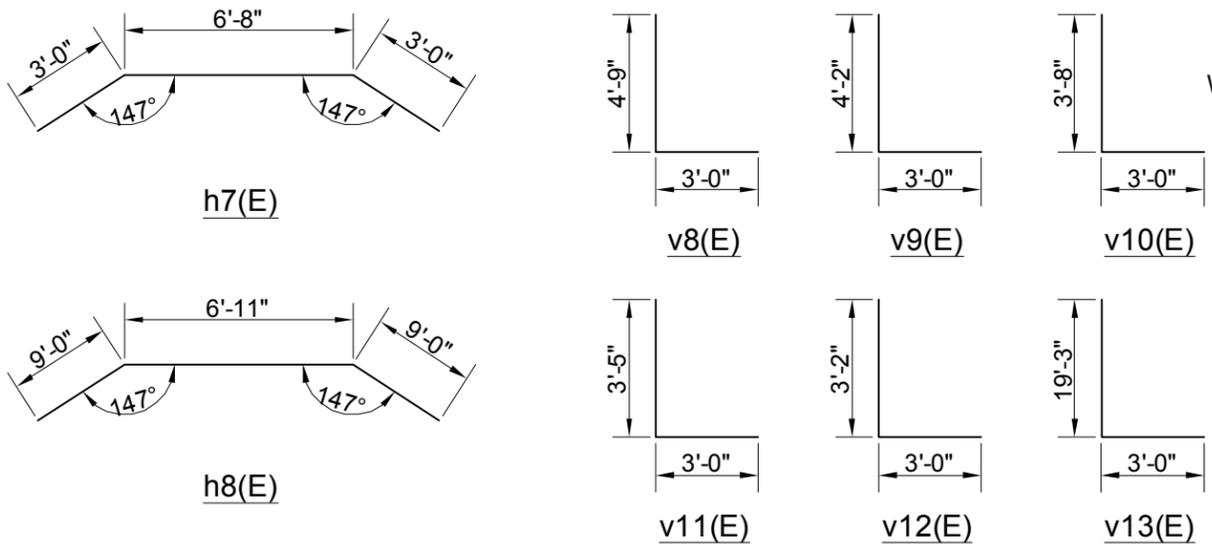


**PULASKI DRIVE CULVERT REPLACEMENT**  
DETAIL SHEET

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	11	40



Bill of Material			
Bar	No.	Size	Length
h1(E)	15	#5	18'-2"
h2(E)	15	#5	18'-3"
v1(E)	4	#5	5'-8"
v2(E)	4	#5	4'-11"
v3(E)	4	#5	4'-8"
v4(E)	2	#5	3'-7"
v5(E)	2	#5	2'-11"
v6(E)	2	#5	2'-8"
v7(E)	40	#5	13'-10"
h3(E)	51	#7	7'-8"
h4(E)	76	#7	7'-8"
h5(E)	32	#5	19'-8"
h6(E)	16	#5	9'-8"
h7(E)	10	#5	12'-8"
h8(E)	11	#7	24'-11"
v8(E)	2	#7	7'-9"
v9(E)	2	#7	7'-2"
v10(E)	2	#7	6'-8"
v11(E)	2	#7	6'-5"
v12(E)	4	#7	6'-2"
v13(E)	76	#7	22'-3"
Concrete Structures	Cu Yd		34
Reinforcement Bars, Epoxy Coated	Pound		8351
Granular Backfill for Structures	Cu Yd		17

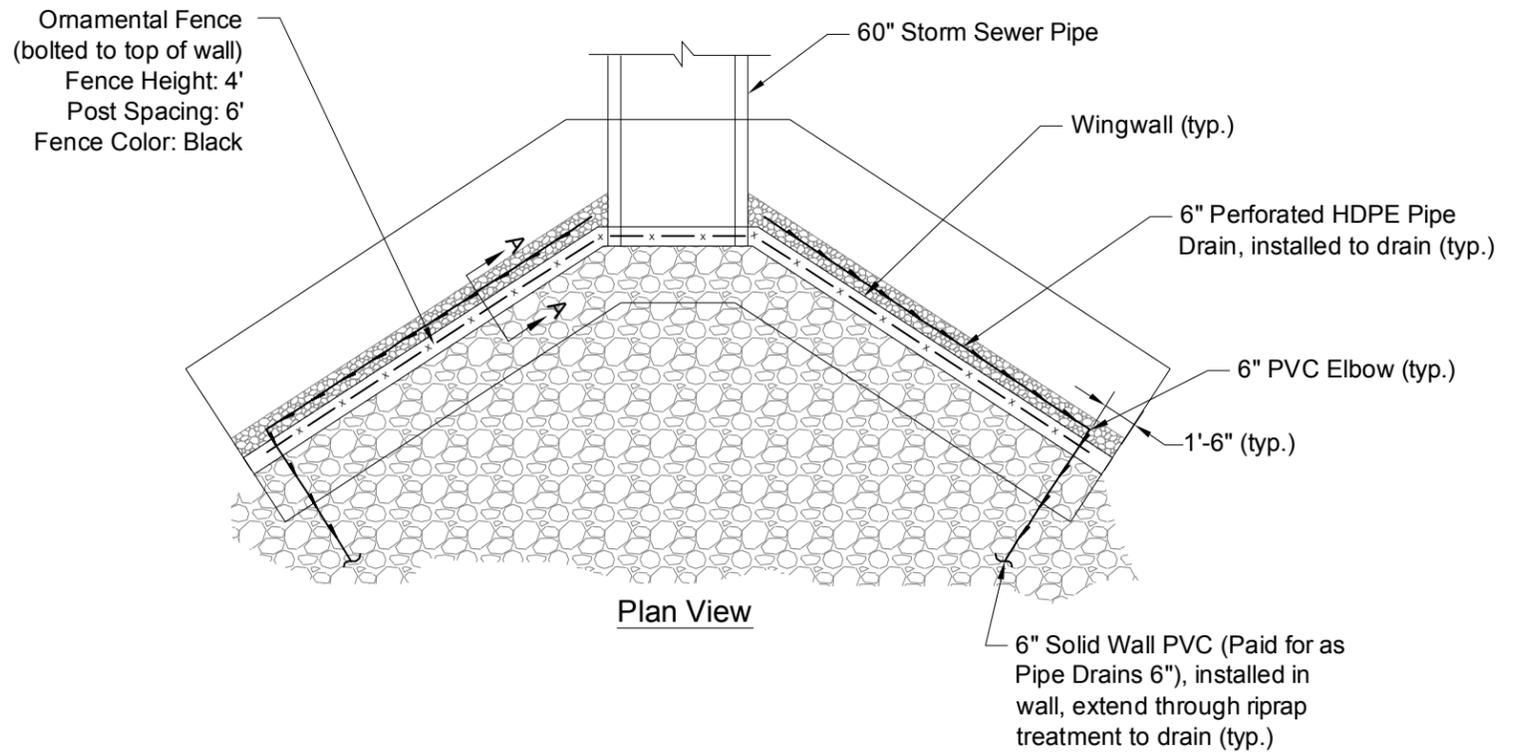
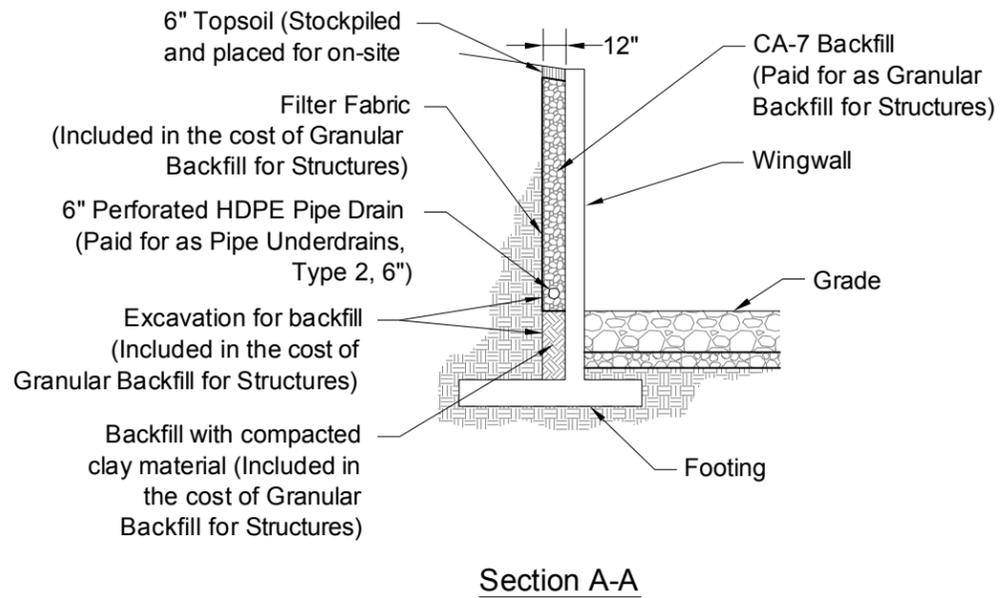


- Notes:
- Concrete to meet or exceed 5,000 psi at 28 days
  - Reinforcement bars shall be ASTM A706 Grade 60, Epoxy Coated
  - Provide 2 inch minimum cover (typ.)
  - Foundation design is based on foundations applying a maximum allowable soil bearing pressure of 3,000 psf to undisturbed compacted soil. Soil conditions shall be verified by the geotechnical engineer prior to pouring the foundations.

## Reinforced Concrete End Section Detail (1 of 2)

(Not to Scale)





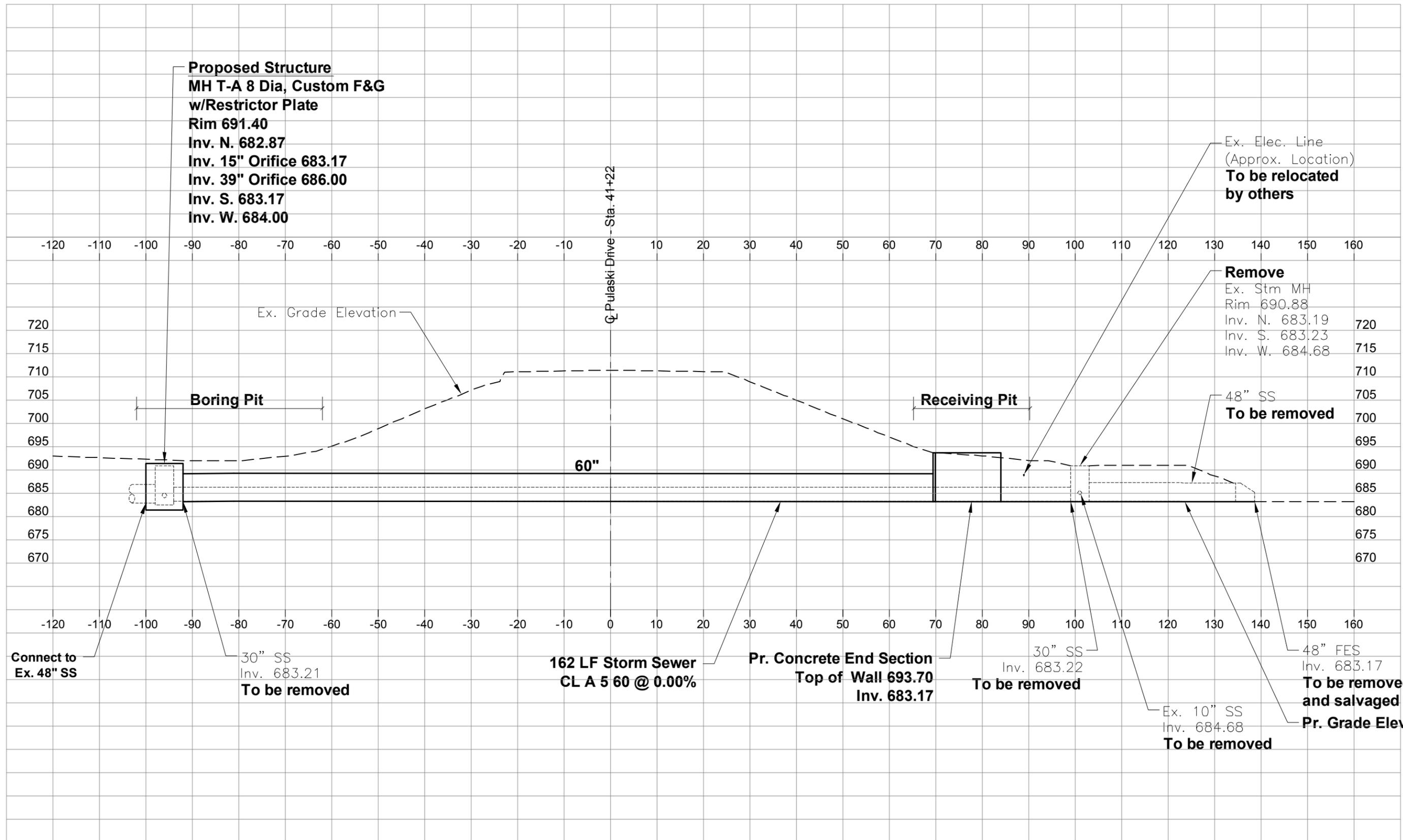
**Reinforced Concrete End Section Detail (2 of 2)**  
**(Not to Scale)**

REVISIONS / REMARKS					
NO.	DESCRIPTION	DATE	BY	SURVEYOR:	
				DSG NR/LIAISON:	DAK
				PLOTTED BY:	NAJ/CFR 7/27/2016

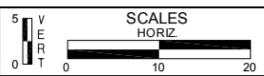


**PULASKI DRIVE CULVERT REPLACEMENT**  
**DETAIL SHEET**

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	13	40



REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:



**PULASKI DRIVE CULVERT REPLACEMENT**  
 CROSS SECTION STA. 41+22

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	14	40

REVISIONS / REMARKS				
NO.	DESCRIPTION	DATE	BY	SURVEYOR:

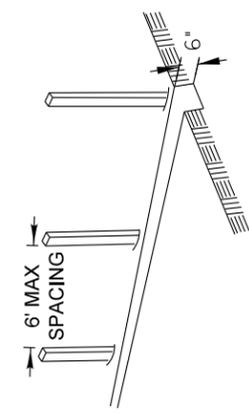
FILE NAME: U:\Design\Ruiz\14-00196-09-DR Pulaski Drive Culvert Replacement\Plans\14-00196-09-DR lcdot standards.dgn



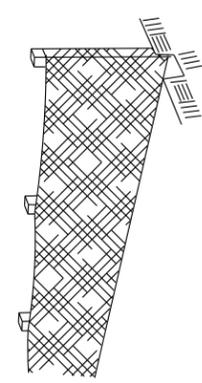
**PULASKI DRIVE CULVERT REPLACEMENT**  
LAKE COUNTY STANDARDS & DETAILS

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	15	40

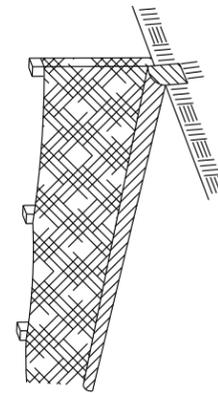
1. SET POSTS AND EXCAVATE OR SLIT-TRENCH A 6-INCH DEEP TRENCH UPSLOPE ALONG THE LINE OF POSTS



2. ATTACH GEOTEXTILE FILTER FABRIC TO EACH POST WITH A MINIMUM OF 3 (THREE) FASTENERS PER POST AND EXTEND FABRIC TO THE BOTTOM OF THE TRENCH



3. BACKFILL AND COMPACT THE EXCAVATED MATERIALS



Requirements	Test Methods	Wire Backed Supported Silt Fence <sup>a</sup>	Unsupported Silt Fence
Maximum Post Spacing	ASTM D 4632	4 feet	4 feet
Grab Strength		90 lbs	124 lbs
Machine direction		90 lbs	100 lbs
X-Machine direction		0.05 sec <sup>-1</sup>	0.05 sec <sup>-1</sup>
Permittivity <sup>c</sup>	ASTM D 4491	0.024in maximum average roll value	70% after 500 hours of exposure
Apparent Opening Size	ASTM D 4751		
Ultraviolet stability (retained strength)	ASTM D 4355		

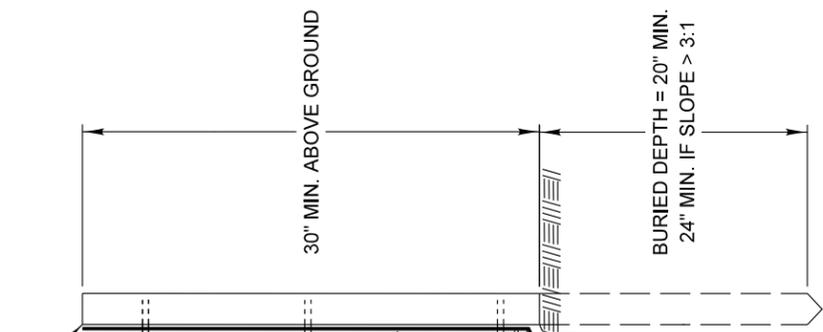
POSTS - CHOICE OF:  
1.2" X 1.2" NOMINAL HARDWOOD POSTS  
2.6" X 2.6" NOMINAL NO.2 SOUTHERN PINE OR  
U, T, L, OR C-SHAPE STEEL POSTS WITH MIN. WEIGHT 1.33 LBS/FT

FASTENERS (TYP.)

GEOTEXTILE FABRIC\*

COMPACTED SPOIL MATERIAL

FABRIC EXTENSION INTO TRENCH



\* NOTE: OPTIONAL WIRE SUPPORT

- MIN. 30" HEIGHT
- MIN. 14 GAUGE WIRE
- MIN. 6 HORIZ. WIRES
- MIN. 6" VERTICAL SPACING

REVISIONS	DATE
ORIG. by LCSMC	4/2/08
Update Text	7/15/11



APPROVED BY: M. G. ZEMAITIS  
DATE: JUNE 20, 2008

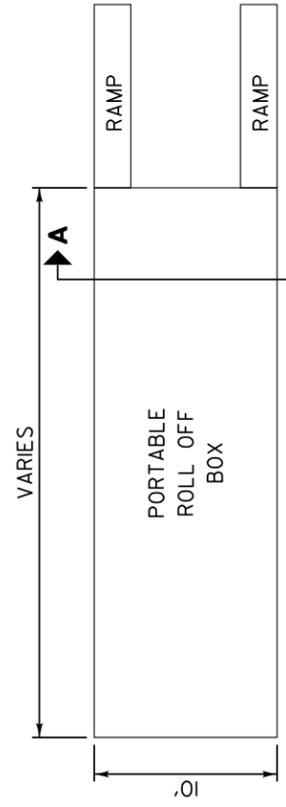
LC2051

**PERIMETER EROSION BARRIER INSTALLATION**

SCALE 1" = 1'

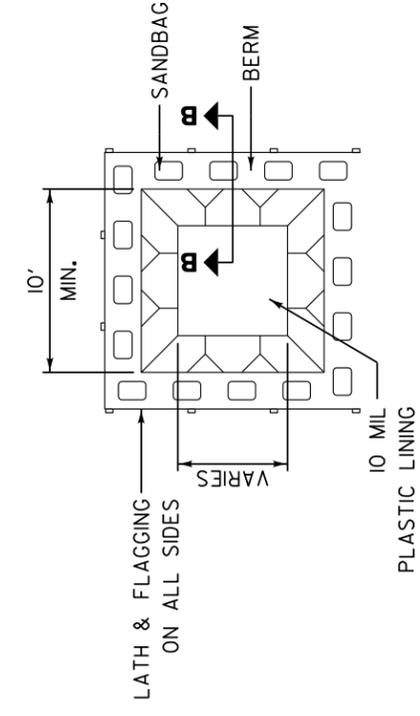
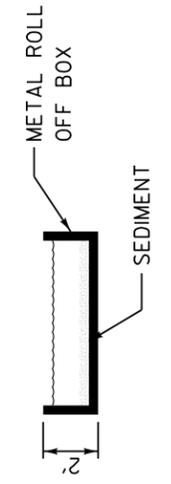
REVISIONS / REMARKS		DATE	BY	SURVEYOR:	
NO.	DESCRIPTION			DSG NR/LIAISON:	
				PLOTTED BY:	HDI8572 8/2/2016

FILE NAME: U:\Design\Ruiz\14-00196-09-DR Pulaski Drive Culvert Replacement\Plans\14-00196-09-DR lcdot standards.dgn



PLAN VIEW  
PREFAB PORTABLE WASHOUT

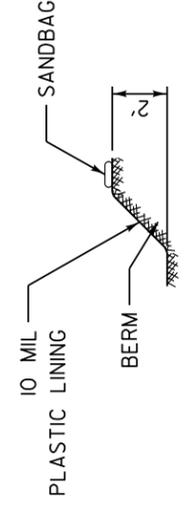
SECTION A-A



PLAN VIEW

BELOW GRADE

SECTION B-B



NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

NOT TO SCALE

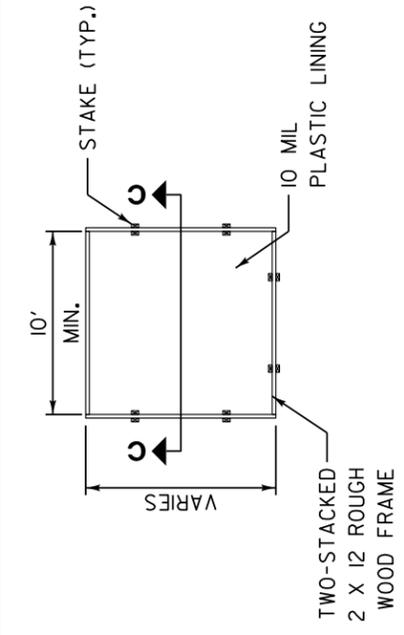
REVISIONS	DATE

**LC4202**

LakeCounty  
Division of Transportation

APPROVED BY: MGZ  
DATE: March 17, 2008

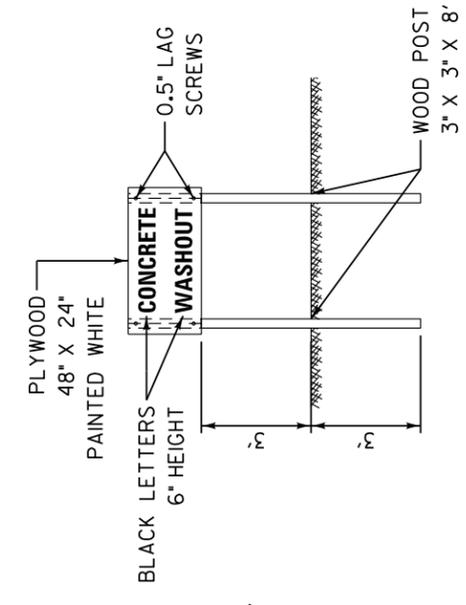
**CONCRETE WASHOUT FACILITIES**  
SHEET 1 OF 2



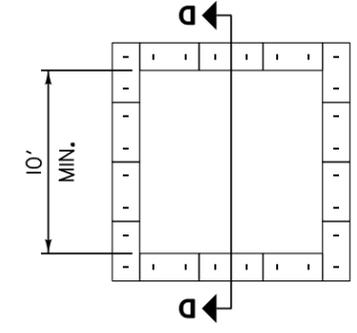
PLAN VIEW

ABOVE GRADE

SECTION C-C



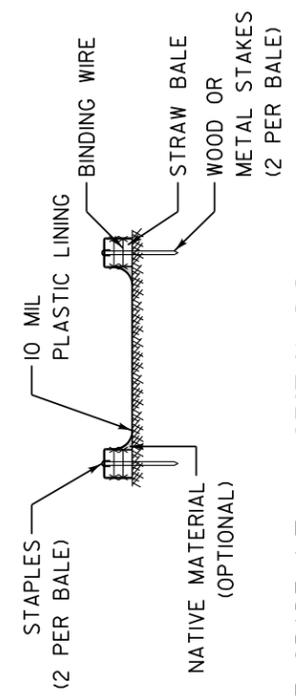
CONCRETE WASHOUT  
SIGN DETAIL  
(OR EQUIVALENT)



PLAN VIEW

ABOVE GRADE WITH

SECTION D-D



STRAW BALES

STAPLE DETAIL

NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

NOT TO SCALE

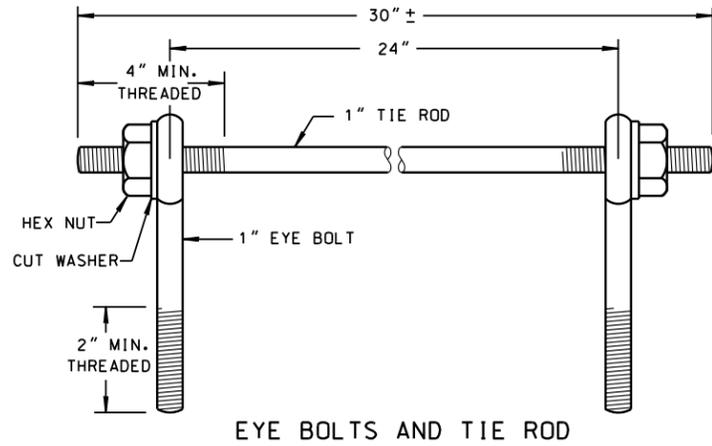
REVISIONS	DATE

**LC4202**

LakeCounty  
Division of Transportation

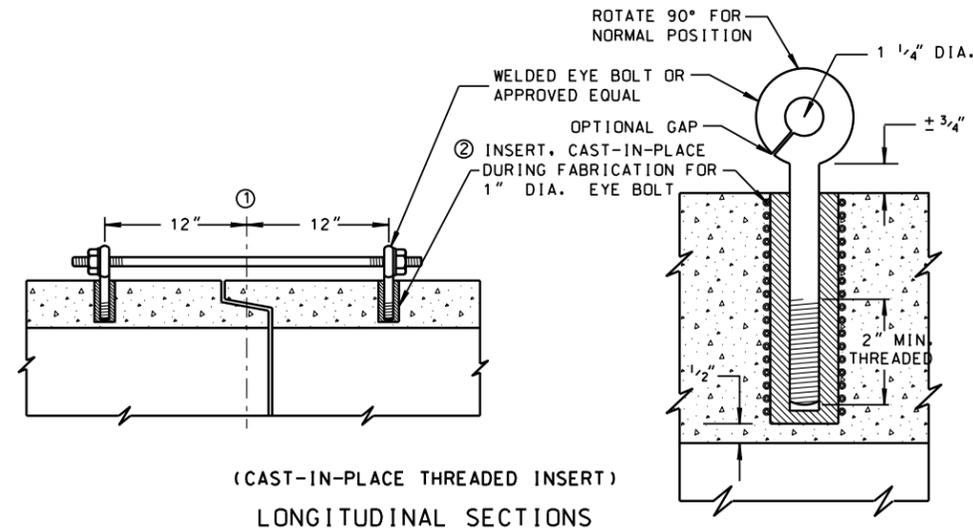
APPROVED BY: MGZ  
DATE: March 17, 2008

**CONCRETE WASHOUT FACILITIES**  
SHEET 2 OF 2



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST-IN-PLACE THREADED INSERT)  
LONGITUDINAL SECTIONS

**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS. JOINT TIES AND HARDWARE SHALL BE GALVANIZED STEEL.

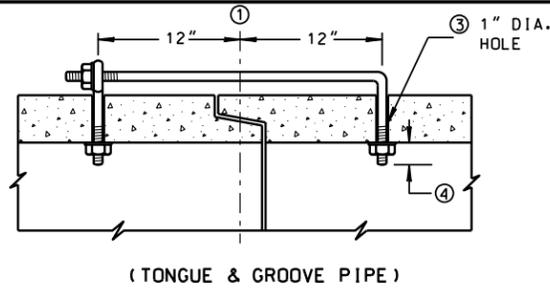
CONCRETE CULVERT PIPE AND SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT THE LAST THREE JOINTS BEFORE A FLARED END SECTION

THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR CONCRETE PIPE.

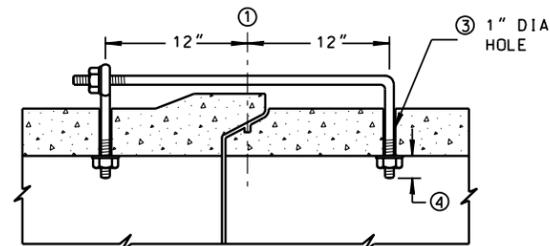
UNLESS OTHERWISE STATED IN THE CONTRACT THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE CULVERT PIPE AS INDICATED ON THE PLANS AND BY THIS DETAIL WILL BE CONSIDERED INCLUDED IN THE COST OF PIPE CULVERTS OR STORM SEWERS.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR GALVANIZED STEEL JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

- ①  $\frac{1}{2}$  OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12" FROM  $\frac{1}{2}$  OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2".
- ⑤ OPENING TO BE ROD DIAMETER + 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



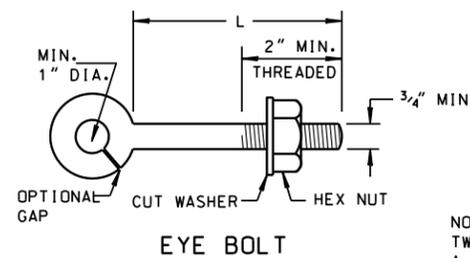
(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)  
LONGITUDINAL SECTION

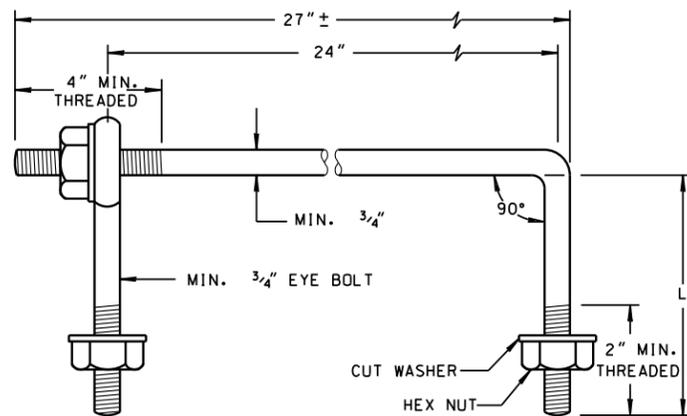
**EYE BOLT DIMENSION TABLE**

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



EYE BOLT

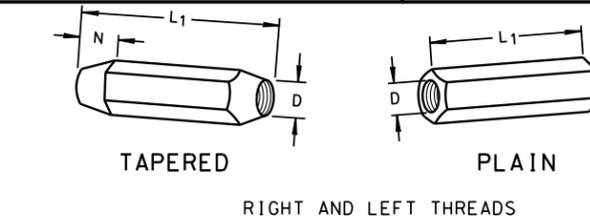
NOTE:  
TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



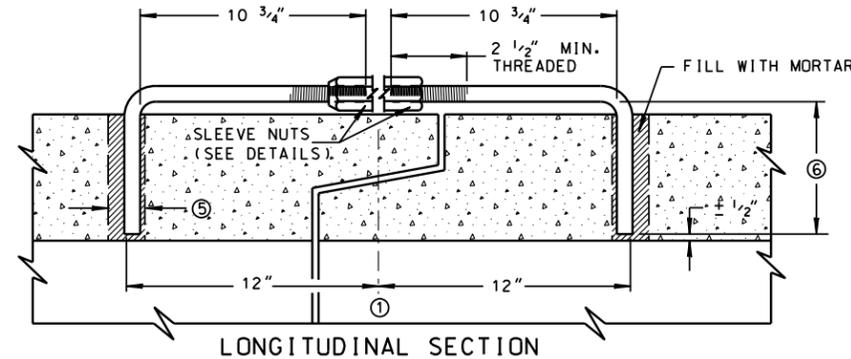
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



SLEEVE NUTS



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

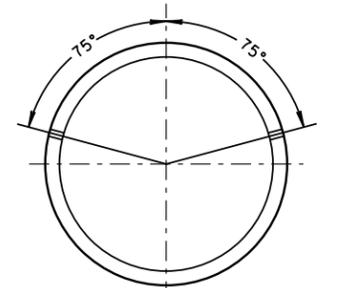
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

**ADJUSTABLE TIE ROD TABLE**

PIPE DIAMETER	TIE ROD DIAMETER	D	L1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 7/16

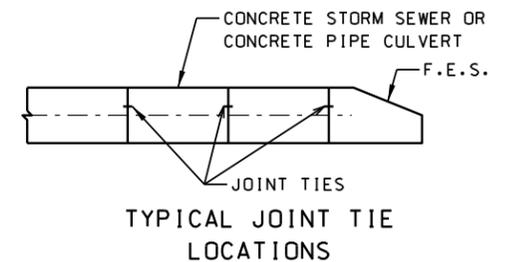
DIMENSIONS SHOWN ARE IN INCHES

NOT TO SCALE



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



TYPICAL JOINT TIE LOCATIONS

NO.	REVISIONS / REMARKS	DATE	BY	SURVEYOR:	
	DESCRIPTION	/ /	/	DSGMR/LIAISON:	/
		/ /		PLOTTED BY:	HD18572 8/2/2016

FILE NAME: U:\Design\Ruiz\14-00196-09-DR Pulaski Drive Culvert Replacement\Plans\14-00196-09-DR lcdot standard 5402.dgn



**PULASKI DRIVE CULVERT REPLACEMENT**  
**LAKE COUNTY STANDARDS & DETAILS**

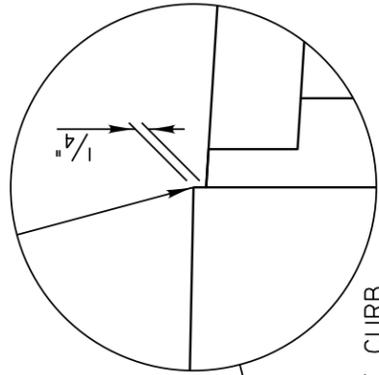
APPROVED BY: M. ZEMAITIS  
DATE: 04/01/11  
Lake County Division of Transportation

**JOINT TIES FOR CONCRETE PIPE**

ROUTE	SECTION	SECTION NUMBER	SHEET	SHEETS
CH78	196	14-00196-09-DR	17	40

LC5402

**DRAINAGE STRUCTURES  
(EDGE OF PAVEMENT)**

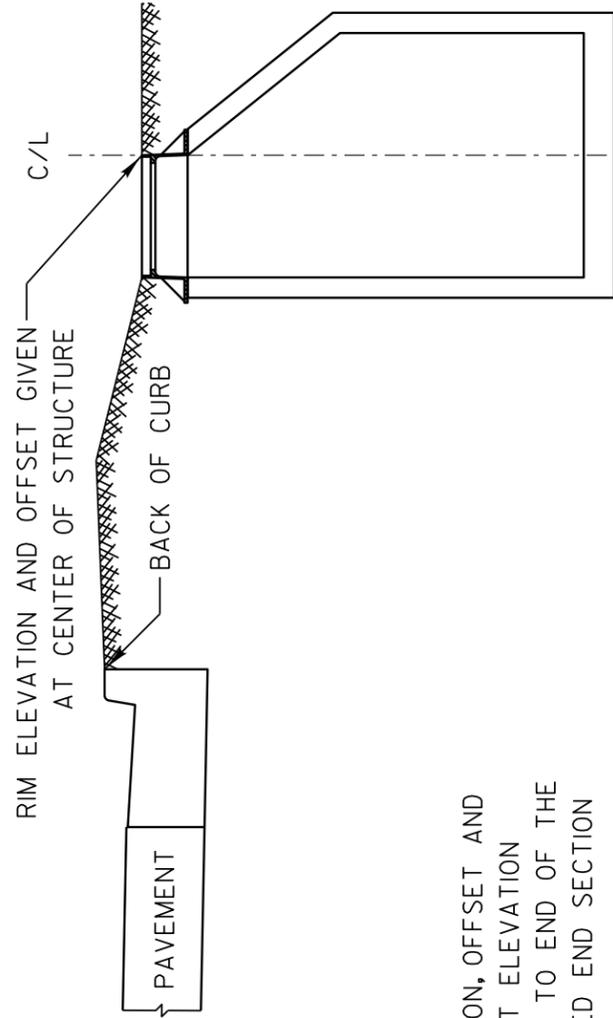


RIM ELEVATION AND  
OFFSET GIVEN AT  
EDGE OF PAVEMENT

PAVEMENT

BACK OF CURB

**DRAINAGE STRUCTURES  
(OUTSIDE EDGE OF PAVEMENT)**

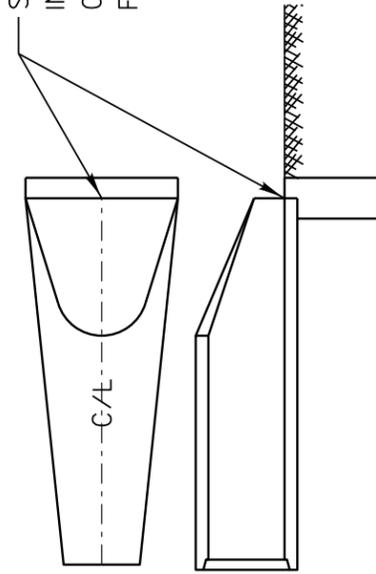


RIM ELEVATION AND OFFSET GIVEN  
AT CENTER OF STRUCTURE

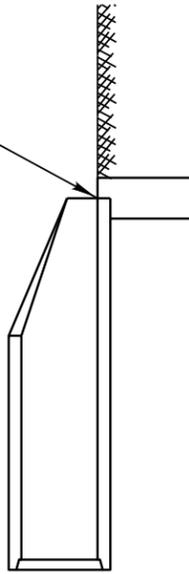
PAVEMENT

BACK OF CURB

**END SECTION**



STATION, OFFSET AND  
INVERT ELEVATION  
GIVEN TO END OF THE  
FLARED END SECTION



REVISIONS

DATE

Lake County  
Division of Transportation

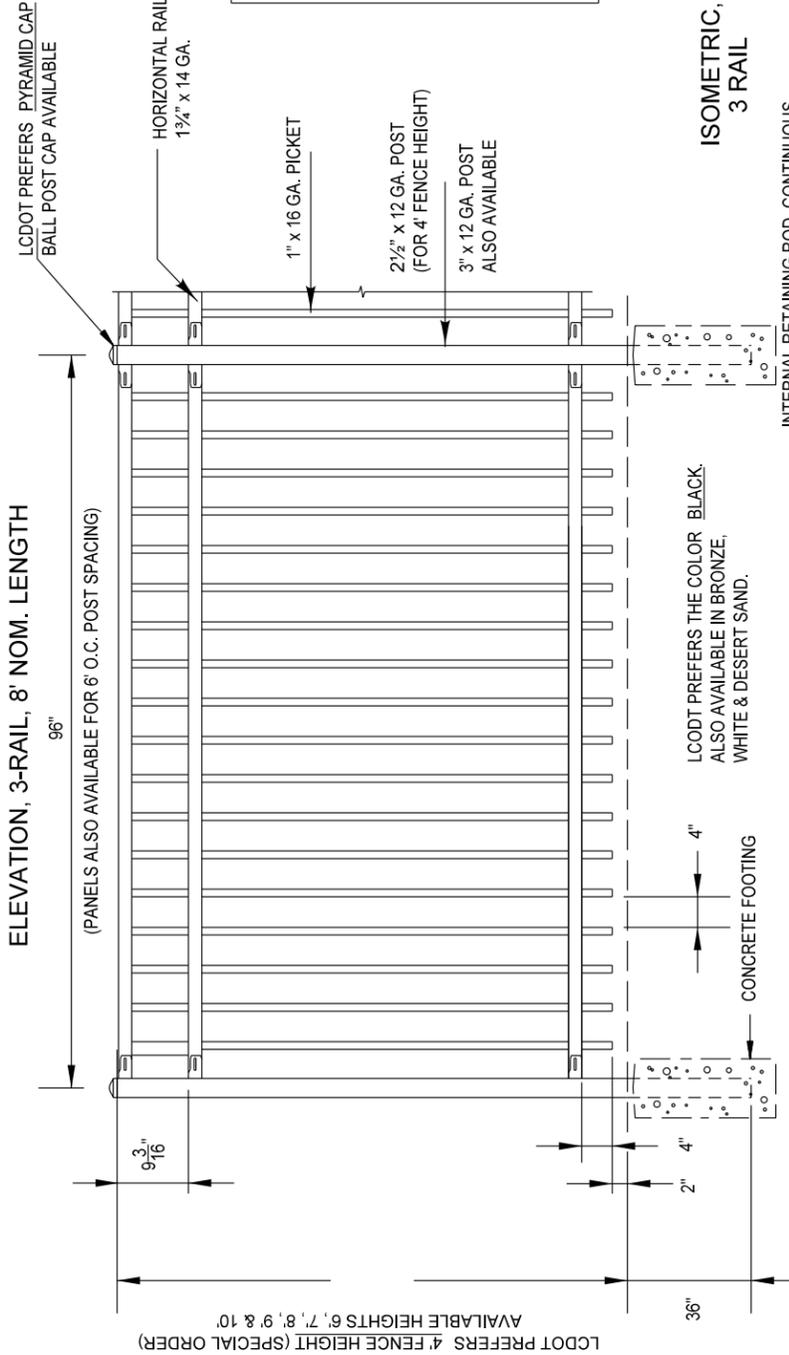
APPROVED BY: MCZ  
DATE: 03/09/2012

LC6003

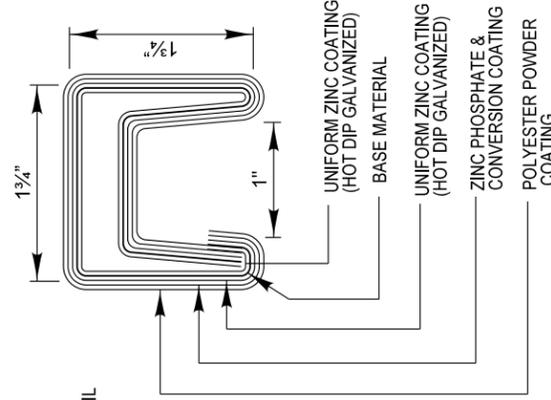
**DRAINAGE STRUCTURE  
RIM ELEVATIONS AND  
OFFSETS**

**ELEVATION, 3-RAIL, 8' NOM. LENGTH**

(PANELS ALSO AVAILABLE FOR 6' O.C. POST SPACING)



**CROSS SECTION OF  
HORIZONTAL RAIL**



PANEL BRACKET  
TWO-POINT RAIL  
END CONNECTION

**ISOMETRIC,  
3 RAIL**

INTERNAL RETAINING ROD, CONTINUOUS  
VARIABLE PITCH CONNECTION SYSTEM  
ELIMINATES EXTERNAL FASTENERS

HORIZONTAL RAIL  
DOUBLE-WALLED "U" CHANNEL  
SPECIALLY FORMED HIGH  
STRENGTH ARCHITECTURAL SHAPE.

**Post Selection for Fence Height 6' - 10'**

Fence Height (FT)	Rail Length (FT)	Wind Loading			Typical Wind Load Capacity (mph)
		Pos: Size	Wind Load Capacity (PSF)	Typical Wind Load Capacity (mph)	
6	6	2 1/2" x 12 GA.	45.5	133.0	
	8	3" x 12 GA.	54.6	146.0	
7	6	2 1/2" x 12 GA.	41.0	127.0	
	8	3" x 12 GA.	33.4	114.0	
8	6	2 1/2" x 12 GA.	25.0	99.0	
	8	3" x 12 GA.	30.0	108.0	
9	6	2 1/2" x 12 GA.	25.6	100.0	
	8	3" x 12 GA.	30.7	110.0	
10	6	4" x 12 GA.	19.2	87.0	
	8	4" x 12 GA.	23.0	95.0	
11	6	4" x 12 GA.	30.6	110.0	
	8	4" x 12 GA.	32.0	113.0	
12	6	4" x 12 GA.	28.7	107.0	
	8	4" x 12 GA.	32.0	113.0	

GATES: SPECIFY OPENING WIDTHS  
SINGLE \_\_\_\_\_ QUANTITY \_\_\_\_\_  
DOUBLE \_\_\_\_\_ QUANTITY \_\_\_\_\_

Lake County  
Division of Transportation

APPROVED BY: M. G. ZEMAITIS  
DATE: APRIL 11, 2007

LC6601

**ORNAMENTAL FENCE  
THREE RAIL  
(ONE MFGR'S DETAILS)**

REVISIONS

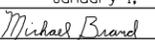
DATE

Lake County  
Division of Transportation

APPROVED BY: M. G. ZEMAITIS  
DATE: APRIL 11, 2007

NO.	DESCRIPTION	DATE	BY	SURVEYOR:	

ABV	ABOVE	CU YD	CUBIC YARD	HD	HEAD	PED	PEDESTAL	STD	STANDARD
A/C	ACCESS CONTROL	CULV	CULVERT	HDW	HEADWALL	PNT	POINT	SBI	STATE BOND ISSUE
AC	ACRE	C&G	CURB & GUTTER	HDUTY	HEAVY DUTY	PC	POINT OF CURVATURE	SR	STATE ROUTE
ADJ	ADJUST	D	DEGREE OF CURVE	ha	HECTARE	PI	POINT OF INTERSECTION OF HORIZONTAL CURVE	STA	STATION
AS	AERIAL SURVEYS	DC	DEPRESSED CURVE	HMA	HOT MIX ASPHALT			SPBGR	STEEL PLATE BEAM GUARDRAIL
AGG	AGGREGATE	DET	DETECTOR	HWY	HIGHWAY	PRC	POINT OF REVERSE CURVE	SS	STORM SEWER
AH	AHEAD	DIA	DIAMETER	HORIZ	HORIZONTAL	PT	POINT OF TANGENCY	STY	STORY
APT	APARTMENT	DIST	DISTRICT	HSE	HOUSE	POT	POINT ON TANGENT	ST	STREET
ASPH	ASPHALT	DOM	DOMESTIC	IL	ILLINOIS	POLYETH	POLYETHYLENE	STR	STRUCTURE
AUX	AUXILIARY	DBL	DOUBLE	IMP	IMPROVEMENT	PCC	PORTLAND CEMENT CONCRETE	e	SUPERELEVATION RATE
AGS	AUXILIARY GAS VALVE (SERVICE)	DSEL	DOWNSTREAM ELEVATION	IN DIA	INCH DIAMETER	PP	POWER POLE OR PRINCIPAL POINT	S.E. RUN.	SUPERELEVATION RUNOFF LENGTH
AVE	AVENUE	DSFL	DOWNSTREAM FLOWLINE	INL	INLET	PRM	PRIME	SURF	SURFACE
AX	AXIS OF ROTATION	DR	DRAINAGE OR DRIVE	INST	INSTALLATION	PE	PRIVATE ENTRANCE	SMK	SURVEY MARKER
BK	BACK	DI	DRAINAGE INLET OR DROP INLET	IDS	INTERSECTION DESIGN STUDY	PROF	PROFILE	T	TANGENT DISTANCE
B-B	BACK TO BACK	DRV	DRIVEWAY	INV	INVERT	PGL	PROFILE GRADELINE	T.R.	TANGENT RUNOUT DISTANCE
BKPL	BACKPLATE	DCT	DUCT	IP	IRON PIPE	PROJ	PROJECT	TEL	TELEPHONE
B	BARN	EA	EACH	IR	IRON ROD	P.C.	PROPERTY CORNER	TB	TELEPHONE BOX
BARR	BARRICADE	EB	EASTBOUND	JT	JOINT	PL	PROPERTY LINE	TP	TELEPHONE POLE
BGN	BEGIN	EOP	EDGE OF PAVEMENT	kg	KILOGRAM	PR	PROPOSED	TEMP	TEMPORARY
BM	BENCHMARK	E-CL	EDGE TO CENTERLINE	km	KILOMETER	R	RADIUS	TBM	TEMPORARY BENCH MARK
BIND	BINDER	E-E	EDGE TO EDGE	LS	LANDSCAPING	RR	RAILROAD	TD	TILE DRAIN
BIT	BITUMINOUS	EL	ELEVATION	LN	LANE	RRS	RAILROAD SPIKE	TBE	TO BE EXTENDED
BTM	BOTTOM	ENTR	ENTRANCE	LT	LEFT	RPS	REFERENCE POINT STAKE	TBR	TO BE REMOVED
BLVD	BOULEVARD	EXC	EXCAVATION	LP	LIGHT POLE	REF	REFLECTIVE	TBS	TO BE SAVED
BRK	BRICK	EX	EXISTING	LGT	LIGHTING	RCCP	REINFORCED CONCRETE CULVERT PIPE	TWP	TOWNSHIP
BBOX	BUFFALO BOX	EXPWAY	EXPRESSWAY	LF	LINEAL FEET OR LINEAR FEET	REINF	REINFORCEMENT	TR	TOWNSHIP ROAD
BLDG	BUILDING	E	EXTERNAL DISTANCE OF HORIZONTAL CURVE	L	LITER OR CURVE LENGTH	REM	REMOVAL	TS	TRAFFIC SIGNAL
CIP	CAST IRON PIPE	E	OFFSET DISTANCE TO VERTICAL CURVE	LC	LONG CHORD	RC	REMOVE CROWN	TSCB	TRAFFIC SIGNAL CONTROL BOX
CB	CATCH BASIN	F-F	FACE TO FACE	LNG	LONGITUDINAL	REP	REPLACEMENT	TSC	TRAFFIC SYSTEMS CENTER
C-C	CENTER TO CENTER	FA	FEDERAL AID	L SUM	LUMP SUM	REST	RESTAURANT	TRVS	TRANSVERSE
CL	CENTERLINE OR CLEARANCE	FAI	FEDERAL AID INTERSTATE	MACH	MACHINE	RESURF	RESURFACING	TRVL	TRAVEL
CL-E	CENTERLINE TO EDGE	FAP	FEDERAL AID PRIMARY	MB	MAIL BOX	RET	RETAINING	TRN	TURN
CL-F	CENTERLINE TO FACE	FAS	FEDERAL AID SECONDARY	MH	MANHOLE	RT	RIGHT	TY	TYPE
CTS	CENTERS	FAUS	FEDERAL AID URBAN SECONDARY	MATL	MATERIAL	ROW	RIGHT-OF-WAY	T-A	TYPE A
CERT	CERTIFIED	FP	FENCE POST	MED	MATERIAL	RD	ROAD	TYP	TYPICAL
CHSLD	CHISELED	FE	FIELD ENTRANCE	m	METER	RDWY	ROADWAY	UNDGND	UNDERGROUND
CS	CITY STREET	FH	FIRE HYDRANT	METH	METHOD	RTE	ROUTE	USGS	U.S. GEOLOGICAL SURVEY
CP	CLAY PIPE	FL	FLOW LINE	M	MID-ORDINATE	SAN	SANITARY	USEL	UPSTREAM ELEVATION
CLSD	CLOSED	FB	FOOT BRIDGE	mm	MILLIMETER	SANS	SANITARY SEWER	USFL	UPSTREAM FLOWLINE
CLID	CLOSED LID	FDN	FOUNDATION	mm DIA	MILLIMETER DIAMETER	SEC	SECTION	UTIL	UTILITY
CT	COAT OR COURT	FR	FRAME	MIX	MIXTURE	SEED	SEEDING	VBOX	VALVE BOX
COMB	COMBINATION	F&G	FRAME & GRATE	MBH	MOBILE HOME	SHAP	SHAPING	VV	VALVE VAULT
C	COMMERCIAL BUILDING	FRWAY	FREEWAY	MOD	MODIFIED	S	SHED	VL	VAULT
CE	COMMERCIAL ENTRANCE	GAL	GALLON	MFT	MOTOR FUEL TAX	SH	SHEET	VEH	VEHICLE
CONC	CONCRETE	GALV	GALVANIZED	N & BC	NAIL & BOTTLE CAP	SHLD	SHOULDER	VP	VENT PIPE
CONST	CONSTRUCT	G	GARAGE	N & C	NAIL & CAP	SW	SIDEWALK OR SOUTHWEST	VERT	VERTICAL
CONTD	CONTINUED	GM	GAS METER	N & W	NAIL & WASHER	SIG	SIGNAL	VC	VERTICAL CURVE
CONT	CONTINUOUS	GV	GAS VALVE	NOAA	NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION	SOD	SODDING	VPC	VERTICAL POINT OF CURVATURE
COR	CORNER	GRAN	GRANULAR	NC	NORMAL CROWN	SM	SOLID MEDIUM	VPI	VERTICAL POINT OF INTERSECTION
CORR	CORRUGATED	GR	GRATE	NB	NORTHBOUND	SB	SOUTHBOUND	VPT	VERTICAL POINT OF TANGENCY
CMP	CORRUGATED METAL PIPE	GRVL	GRAVEL	NE	NORTHEAST	SE	SOUTHEAST	WM	WATER METER
CNTY	COUNTY	GND	GROUND	NW	NORTHWEST	SPL	SPECIAL	WV	WATER VALVE
CH	COUNTY HIGHWAY	GUT	GUTTER	OLID	OPEN LID	SD	SPECIAL DITCH	WMAIN	WATER MAIN
CSE	COURSE	GP	GUY POLE	PAT	PATTERN	SQ FT	SQUARE FEET	WB	WESTBOUND
XSECT	CROSS SECTION	GW	GUY WIRE	PVD	PAVED	m <sup>2</sup>	SQUARE METER	WILDFL	WILDFLOWERS
m <sup>3</sup>	CUBIC METER	HH	HANDHOLE	PVMT	PAVEMENT	mm <sup>2</sup>	SQUARE MILLIMETER	W	WITH
mm <sup>3</sup>	CUBIC MILLIMETER	HATCH	HATCHING	PM	PAVEMENT MARKING	SQ YD	SQUARE YARD	WO	WITHOUT

 Illinois Department of Transportation	
PASSED	January 1, 2011
 ENGINEER OF POLICY AND PROCEDURES	
APPROVED	January 1, 2011
 ENGINEER OF DESIGN AND ENVIRONMENT	

ISSUED 1-1-97

DATE	REVISIONS
1-1-11	Updated abbreviations and symbols.
1-1-08	Updated abbreviations and symbols.

## STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

(Sheet 1 of 8)

STANDARD 000001-06 19 of 40

<u>ADJUSTMENT ITEMS</u>			<u>ALIGNMENT ITEMS</u>			<u>CONTOUR ITEMS</u>		
	<u>EX</u>	<u>PR</u>		<u>EX</u>	<u>PR</u>		<u>EX</u>	<u>PR</u>
Structure To Be Adjusted		ADJ	Baseline			Approx. Index Line		
Structure To Be Cleaned		C	Centerline			Approx. Intermediate Line		
Main Structure To Be Filled		FM	Centerline Break Circle			Index Contour		
Structure To Be Filled		F	Baseline Symbol			Intermediate Contour		
Structure To Be Filled Special		FSP	Centerline Symbol			<u>DRAINAGE ITEMS</u>		
Structure To Be Removed		R	PI Indicator			Channel or Stream Line		
Structure To Be Reconstructed		REC	Point Indicator			Culvert Line		
Structure To Be Reconstructed Special		RSP	Horizontal Curve Data (Half Size)	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	Grading & Shaping Ditches		
Frame and Grate To Be Adjusted		A	<u>BOUNDARIES ITEMS</u>					
Frame and Lid To Be Adjusted		A	Dashed Property Line			Drainage Boundary Line		
Domestic Service Box To Be Adjusted		A	Solid Property/Lot Line			Paved Ditch		
Valve Vault To Be Adjusted		A	Section/Grant Line			Aggregate Ditch		
Special Adjustment		SP	Quarter Section Line			Pipe Underdrain		
Item To Be Abandoned		AB	Quarter/Quarter Section Line			Storm Sewer		
Item To Be Moved		M	County/Township Line			Flowline		
Item To Be Relocated		REL	State Line			Ditch Check		
Pavement Removal and Replacement			Iron Pipe Found			Headwall		
			Iron Pipe Set			Inlet		
			Survey Marker			Manhole		
			Property Line Symbol			Summit		
			Same Ownership Symbol (Half Size)			Roadway Ditch Flow		
			Northwest Quarter Corner (Half Size)			Swale		
			Section Corner (Half Size)			Catch Basin		
			Southeast Quarter Corner (Half Size)			Culvert End Section		
						Water Surface Indicator		
						Riprap		

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 PASSED January 1, 2011  
*Michael Beard*  
 ENGINEER OF POLICY AND PROCEDURES  
 APPROVED January 1, 2011  
*Scott Schick*  
 ENGINEER OF DESIGN AND ENVIRONMENT  
 ISSUED 1-1-97

**STANDARD SYMBOLS,  
 ABBREVIATIONS  
 AND PATTERNS**  
 (Sheet 2 of 8)  
**STANDARD 000001-06** 20 of 40

**EROSION & SEDIMENT CONTROL ITEMS**

**EX**

**PR**

Cleaning & Grading Limits



Dike



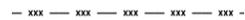
Erosion Control Fence



Perimeter Erosion Barrier



Temporary Fence



Ditch Check Temporary



Ditch Check Permanent



Inlet & Pipe Protection



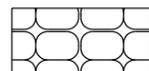
Sediment Basin



Erosion Control Blanket



Fabric Formed Concrete Revetment Mat



Turf Reinforcement Mat



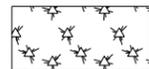
Mulch Temporary



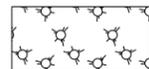
Mulch Method 1



Mulch Method 2 Stabilized



Mulch Method 3 Hydraulic

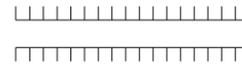


**NON-HIGHWAY IMPROVEMENT ITEMS**

**EX**

**PR**

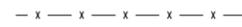
Noise Attn./Levee



Field Line



Fence



Base of Levee



Mailbox



Multiple Mailboxes



Pay Telephone



Advertising Sign



**LANDSCAPING ITEMS**

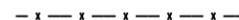
**EX**

**PR**

Contour Mounding Line



Fence



Fence Post



Shrubs



Mowline



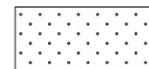
Perennial Plants



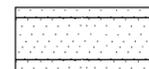
Seeding Class 2



Seeding Class 2A



Seeding Class 4



Seeding Class 4 & 5 Combined



**EXISTING LANDSCAPING ITEMS (contd.)**

**EX**

**PR**

Seeding Class 5



Seeding Class 7



Seedlings Type 1



Seedlings Type 2



Sodding



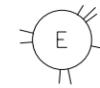
Mowstake w/Sign



Tree Trunk Protection



Evergreen Tree



Shade Tree



**LIGHTING**

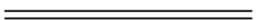
**EX**

**PR**

Duct



Conduit



Electrical Aerial Cable



Electrical Buried Cable



Controller



Underpass Luminaire



Power Pole



**STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS**

(Sheet 3 of 8)

STANDARD 000001-06

21 of 40

Illinois Department of Transportation

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*Scott Schick*  
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ISSUED 1-1-97

**LIGHTING  
(contd.)**

Pull Point

**EX**



**PR**



Handhole



Heavy Duty Handhole



Junction Box



Light Unit Comb.



Electrical Ground



Traffic Flow Arrow



High Mast Pole  
(Half Size)



Light Unit-1



**PAVEMENT (MISC.)**

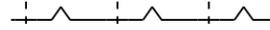
**EX**

**PR**

Keyed Long. Joint



Keyed Long. Joint w/Tie Bars



Sawed Long. Joint w/Tie Bars



Bituminous Shoulder



Bituminous Taper



Stabilized Driveway



Widening



**PAVEMENT MARKINGS**

**EX**

**PR**

Bike Lane Symbol



Bike Lane Text



Handicap Symbol



RR Crossing



Raised Marker Amber 1 Way

Raised Marker Amber 2 Way

Raised Marker Crystal 1 Way



Two Way Turn Left



Shoulder Diag. Pattern



Skip-Dash White



Skip-Dash Yellow



Stop Line



Solid Line



Double Centerline



Dotted Lines



CL 2Ln 2Way  
RRPM 12.2 m (40') o.c.



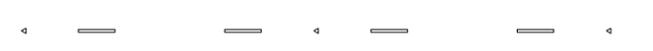
CL 2Ln 2Way  
RRPM 80' (24.4 m) o.c.



CL Multilane Div.  
RRPM 40' (12.2 m) o.c.



CL Multilane Div.  
RRPM 80' (24.4 m) o.c.



CL Multilane Div. Dbl.  
RRPM 80' (24.4 m) o.c.



CL Multilane Undiv.



Two Way Turn Left Line



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**STANDARD SYMBOLS,  
ABBREVIATIONS  
AND PATTERNS**

(Sheet 4 of 8)

STANDARD 000001-06

22 of 40

**PAVEMENT MARKINGS**

**(contd.)**

Urban Combination Left

**EX**



**PR**



Urban Combination Right



Urban Left Turn Arrow



Urban Right Turn Arrow



Urban Left Turn Only



**ONLY ONLY ONLY**



Urban Right Turn Only



Urban Thru Only



Urban U-Turn



Urban Combined U-Turn



Rural Combination Left



Rural Combination Right



Rural Left Turn Arrow



Rural Right Turn Arrow



Rural Left Turn Only



**ONLY ONLY ONLY**



Rural Right Turn Only



**ONLY ONLY ONLY**



Rural Thru Only



**ONLY ONLY ONLY**

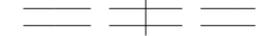


**RAILROAD ITEMS**

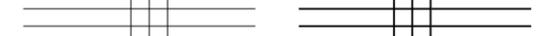
**EX**

**PR**

Abandoned Railroad



Railroad



Railroad Point



Control Box



Crossing Gate



Flashing Signal



Railroad Cant. Mast Arm



Crossbuck



**REMOVAL ITEMS**

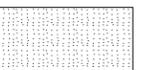
**EX**

**PR**

Removal Tic



Bituminous Removal



Hatch Pattern



Tree Removal Single



**RIGHT OF WAY ITEMS**

**EX**

**PR**

Future ROW Corner Monument



ROW Marker



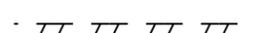
ROW Line



Easement



Temporary Easement



**STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS**

(Sheet 5 of 8)

**STANDARD 000001-06**

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**RIGHT OF WAY ITEMS**  
**(contd.)**

	<b>EX</b>	<b>PR</b>
Access Control Line	— AC —————	— AC —————
Access Control Line & ROW	— AC —————	— AC —————
Access Control Line & ROW with Fence	— x ————— AR —	— x — AC — x —
Excess ROW Line		— XS —————

**ROADWAY PLAN**  
**ITEMS**

	<b>EX</b>	<b>PR</b>
Cable Barrier		
Concrete Barrier		
Edge of Pavement	-----	-----
Bit Shoulders, Medians and C&G Line	-----	-----
Aggregate Shoulder	-----	-----
Sidewalks, Driveways	-----	-----
Guardrail		
Guardrail Post	□	
Traffic Sign		
Corrugated Median		
Impact Attenuator		
North Arrow with District Office (Half Size)		
Match Line		STA. 45+00
Slope Limit Line	-----	
Typical Cross-Section Line	-----	-----

**ROADWAY PROFILES**

	<b>EX</b>	<b>PR</b>
P.I. Indicator	△	△
Point Indicator	○	○
Earthworks Balance Point		
Begin Point		
Vert. Curve Data	VPI = ELEV = L = E =	VPI = ELEV = L = E =
Ditch Profile Left Side	-----	-----
Ditch Profile Right Side	-----	-----
Roadway Profile Line	-----	-----
Storm Sewer Profile Left Side	-----	-----
Storm Sewer Profile Right Side	-----	-----

**SIGNING ITEMS**

	<b>EX</b>	<b>PR</b>
Cone, Drum or Barricade		○
Barricade Type II		
Barricade Type III		
Barricade With Edge Line		
Flashing Light Sign		○
Panels I		
Panels II		
Direction of Traffic		
Sign Flag (Half Size)		

**SIGNING ITEMS**  
**(contd.)**

	<b>EX</b>	<b>PR</b>
Reverse Left W1-4L (Half Size)		
Reverse Right W1-4R (Half Size)		
Two Way Traffic Sign W6-3 (Half Size)		
Detour Ahead W20-2(0) (Half Size)		
Left Lane Closed Ahead W20-5L(0) (Half Size)		
Right Lane Closed Ahead W20-5R(0) (Half Size)		
Road Closed Ahead W20-3(0) (Half Size)		
Road Construction Ahead W20-1(0) (Half Size)		
Single Lane Ahead (Half Size)		
Transition Left W4-2L (Half Size)		
Transition Right W4-2R (Half Size)		

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**STANDARD SYMBOLS,  
ABBREVIATIONS  
AND PATTERNS**

(Sheet 6 of 8)

**SIGNING ITEMS**  
**(contd.)**

**EX**

**PR**

One Way Arrow Lrg. W1-6-(0)  
(Half Size)



Two Way Arrow Large W1-7-(0)  
(Half Size)



Detour M4-10L-(0)  
(Half Size)



Detour M4-10R-(0)  
(Half Size)



One Way Left R6-1L  
(Half Size)



One Way Right R6-1R  
(Half Size)



Left Turn Lane R3-1100L  
(Half Size)



Keep Left R4-7AL  
(Half Size)



Keep Left R4-7BL  
(Half Size)



Keep Right R4-7AR  
(Half Size)



Keep Right R4-7BR  
(Half Size)



Stop Here On Red R10-6-AL  
(Half Size)



Stop Here On Red R10-6-AR  
(Half Size)



No Left Turn R3-2  
(Half Size)



No Right Turn R3-1  
(Half Size)



Road Closed R11-2  
(Half Size)



Road Closed Thru Traffic R11-2  
(Half Size)



**STRUCTURES ITEMS**

**EX**

**PR**

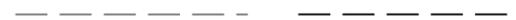
Box Culvert Barrel



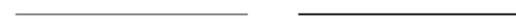
Box Culvert Headwall



Bridge Pier



Bridge



Retaining Wall



Temporary Sheet Piling



**TRAFFIC SHEET ITEMS**

**EX**

**PR**

Cable Number



Left Turn Green



Left Turn Yellow



Signal Backplate



Signal Section 8" (200 mm)



Signal Section 12" (300 mm)



Walk/Don't Walk Letters



Walk/Don't Walk Symbols



**TRAFFIC SIGNAL ITEMS**

**EX**

**PR**

Galv. Steel Conduit



Underground Cable



Detector Loop Line



Detector Loop Large



Detector Loop Small



Detector Loop Quadrapole



**STANDARD SYMBOLS,  
ABBREVIATIONS  
AND PATTERNS**

(Sheet 7 of 8)

**STANDARD 000001-06**

25 of 40

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**TRAFFIC SIGNAL  
ITEMS (contd.)**

**EX**

**PR**

Detector Raceway



Aluminum Mast Arm



Steel Mast Arm



Veh. Detector Magnetic



Conduit Splice



Controller



Gulfbox Junction



Wood Pole



Temp. Signal Head



Handhole



Double Handhole



Heavy Duty Handhole



Junction Box



Ped. Pushbutton Detector



Ped. Signal Head



Power Pole Service



Priority Veh. Detector



Signal Head



Signal Head w/Backplate



Signal Post



Closed Circuit TV



Video Detector System



**UNDERGROUND  
UTILITY ITEMS**

**EX**

**PR**

**ABANDONED**

Cable TV



Electric Cable



Fiber Optic



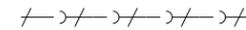
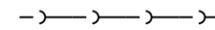
Gas Pipe



Oil Pipe



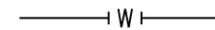
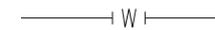
Sanitary Sewer



Telephone Cable



Water Pipe



**UTILITIES ITEMS**

**EX**

**PR**

Controller



Double Handhole



Fire Hydrant



GuyWire or Deadman Anchor



Handhole



Heavy Duty Handhole



Junction Box



Light Pole



Manhole



Pipeline Warning Sign



Power Pole



Power Pole with Light



Sanitary Sewer Cleanout



Splice Box Above Ground



Telephone Splice Box  
Above Ground



Telephone Pole



**UTILITY ITEMS  
(contd.)**

**EX**

**PR**

Traffic Signal



Traffic Signal Control Box



Water Meter



Water Meter Valve Box



Profile Line



Aerial Power Line



**VEGETATION ITEMS**

**EX**

**PR**

Deciduous Tree



Bush or Shrub



Evergreen Tree



Stump



Orchard/Nursery Line



Vegetation Line



Woods & Bush Line



**WATER FEATURE  
ITEMS**

**EX**

**PR**

Stream or Drainage Ditch



Waters Edge



Water Surface Indicator



Water Point



Disappearing Ditch



Marsh



Marsh/Swamp Boundary



**STANDARD SYMBOLS,  
ABBREVIATIONS  
AND PATTERNS**

(Sheet 8 of 8)

STANDARD 000001-06

26 of 40

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REINFORCEMENT BARS - ENGLISH (METRIC)

Bar Size English (metric)	Dia. in. mm	Cross- Sectional Area sq. in. (sq. mm)	Weight lbs./ft. kg/m	SPACING, in. (mm)													
				4 (100)	4½ (115)	5 (125)	5½ (140)	6 (150)	6½ (165)	7 (175)	7½ (190)	8 (200)	8½ (215)	9 (225)	10 (250)	11 (275)	12 (300)
				AREA OF STEEL PER FOOT (METER), sq. in. (sq. mm)													
3 (10)	0.375 (9.5)	0.110 (71)	0.376 (0.560)	0.330 (710)	0.293 (617)	0.264 (568)	0.240 (507)	0.220 (473)	0.203 (430)	0.189 (406)	0.176 (374)	0.165 (355)	0.155 (330)	0.147 (316)	0.132 (284)	0.120 (258)	0.110 (237)
4 (13)	0.500 (12.7)	0.196 (129)	0.668 (0.944)	0.588 (1290)	0.523 (1122)	0.470 (1032)	0.428 (921)	0.392 (860)	0.362 (782)	0.336 (737)	0.314 (679)	0.294 (645)	0.277 (600)	0.261 (573)	0.235 (516)	0.214 (469)	0.196 (430)
5 (16)	0.625 (15.9)	0.307 (199)	1.043 (1.552)	0.921 (1990)	0.819 (1730)	0.737 (1592)	0.670 (1421)	0.614 (1327)	0.567 (1206)	0.526 (1137)	0.491 (1047)	0.461 (995)	0.433 (926)	0.409 (884)	0.368 (796)	0.335 (724)	0.307 (663)
6 (19)	0.750 (19.1)	0.442 (284)	1.502 (2.235)	1.326 (2840)	1.179 (2470)	1.061 (2272)	0.964 (2029)	0.884 (1893)	0.816 (1721)	0.758 (1623)	0.707 (1495)	0.663 (1420)	0.624 (1321)	0.589 (1262)	0.530 (1136)	0.482 (1033)	0.442 (947)
7 (22)	0.875 (22.2)	0.601 (387)	2.044 (3.042)	1.803 (3870)	1.603 (3365)	1.442 (3096)	1.311 (2764)	1.202 (2580)	1.110 (2345)	1.030 (2211)	0.962 (2037)	0.902 (1935)	0.848 (1800)	0.801 (1720)	0.721 (1548)	0.656 (1407)	0.601 (1290)
8 (25)	1.000 (25.4)	0.785 (510)	2.670 (3.973)	2.355 (5100)	2.093 (4435)	1.884 (4080)	1.713 (3543)	1.570 (3400)	1.449 (3091)	1.346 (2914)	1.256 (2684)	1.178 (2550)	1.108 (2372)	1.047 (2267)	0.942 (2040)	0.856 (1855)	0.785 (1700)
9 (29)	1.128 (28.7)	1.000 (645)	3.400 (5.060)	3.000 (6450)	2.667 (5609)	2.400 (5160)	2.182 (4607)	2.000 (4300)	1.846 (3909)	1.714 (3686)	1.600 (3395)	1.500 (3225)	1.412 (3000)	1.333 (2867)	1.200 (2580)	1.091 (2345)	1.000 (2150)
10 (32)	1.270 (32.3)	1.267 (819)	4.303 (6.404)	3.801 (8190)	3.379 (7122)	3.041 (6552)	2.764 (5850)	2.534 (5460)	2.339 (4964)	2.172 (4680)	2.027 (4311)	1.901 (4095)	1.789 (3809)	1.689 (3640)	1.520 (3276)	1.382 (2978)	1.267 (2730)
11 (36)	1.410 (35.8)	1.561 (1006)	5.313 (7.907)	4.683 (10060)	4.163 (8748)	3.746 (8048)	3.406 (7186)	3.122 (6707)	2.882 (6097)	2.676 (5749)	2.498 (5295)	2.342 (5030)	2.204 (4679)	2.081 (4471)	1.873 (4024)	1.703 (3658)	1.561 (3353)

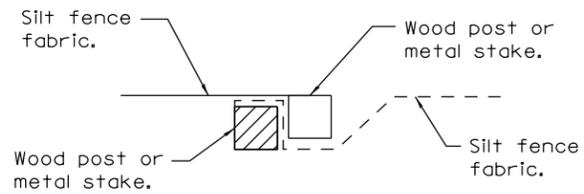
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 APPROVED January 1, 2009  
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ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-07	Deleted metric table. Soft converted English table.

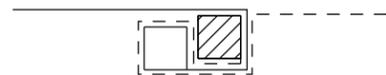
**AREAS OF REINFORCEMENT BARS**

**STANDARD 001001-02**



Place end-post (stake) of first silt fence adjacent to end-post (stake) of second silt fence with fabric positioned as shown.

**STEP 1**

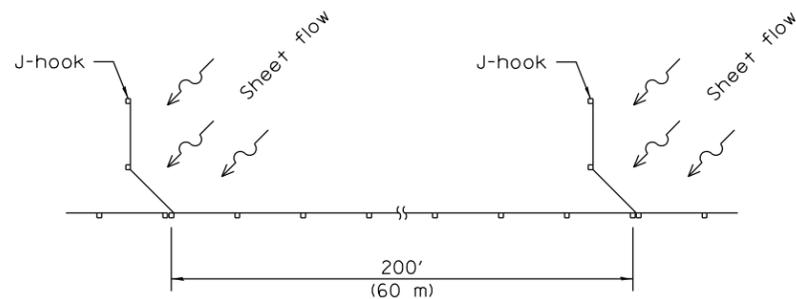


Rotate posts (stakes) together 180° clockwise and drive both posts (stakes) 18 (450) into ground.

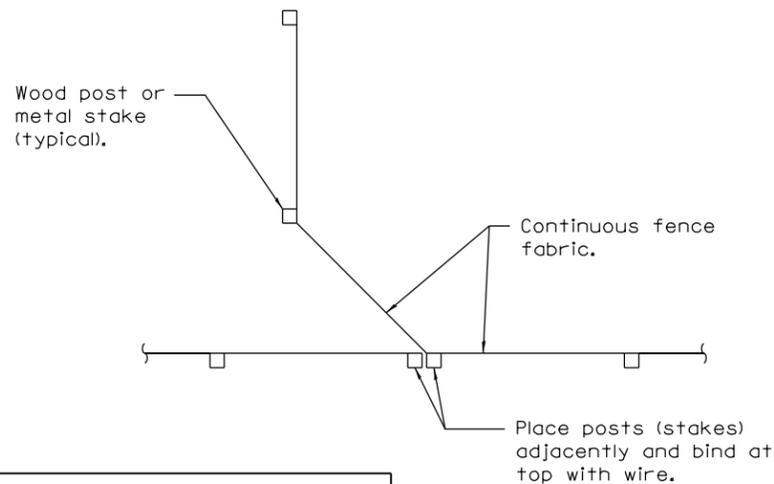
**STEP 2**

**ATTACHING TWO SILT FILTER FENCES**

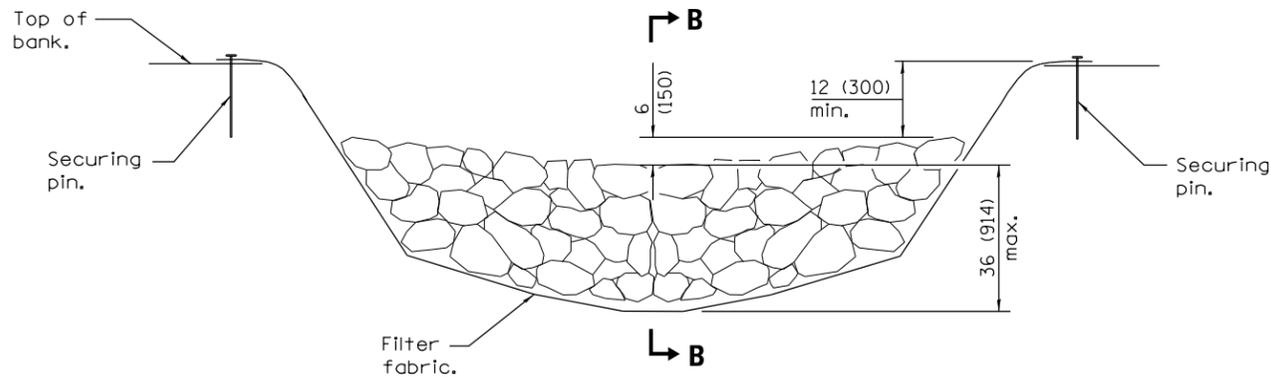
(Not applicable for J-hooks)



**SILT FILTER J-HOOK PLACEMENT**

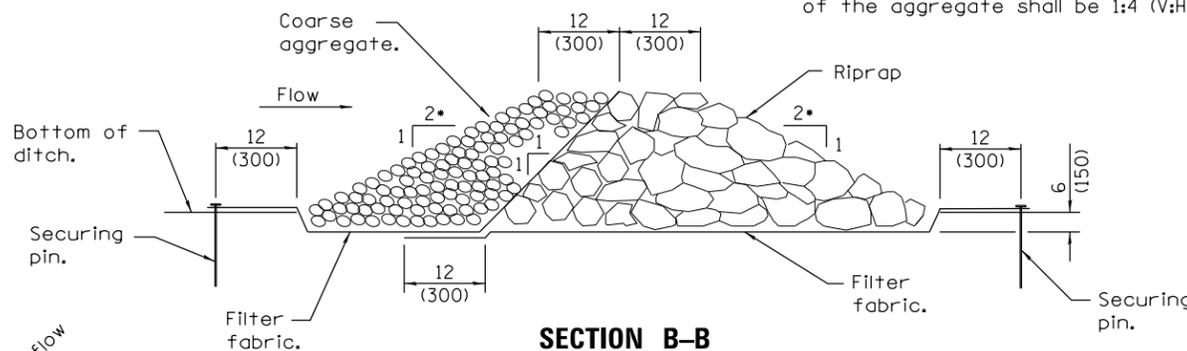


**J-HOOK**



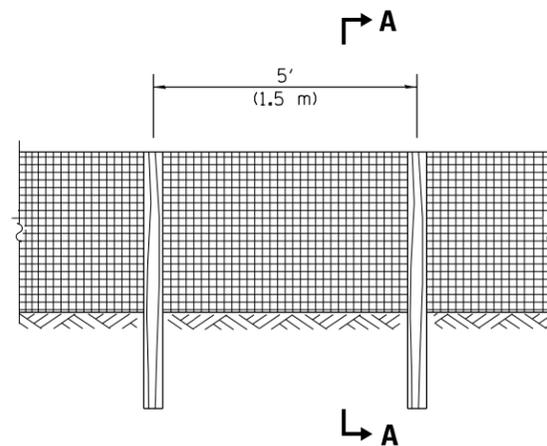
**ELEVATION**

• When the ditch check is within the clear zone and the road is open to traffic, the traffic approach slope of the aggregate shall be 1:4 (V:H).



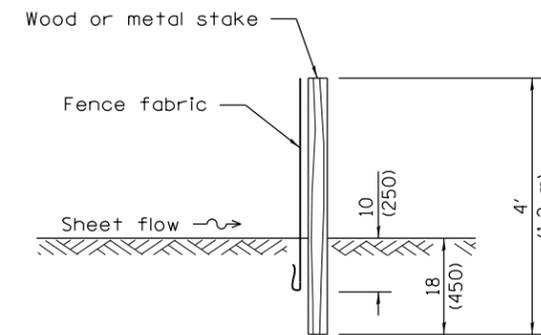
**SECTION B-B**

**AGGREGATE DITCH CHECK**

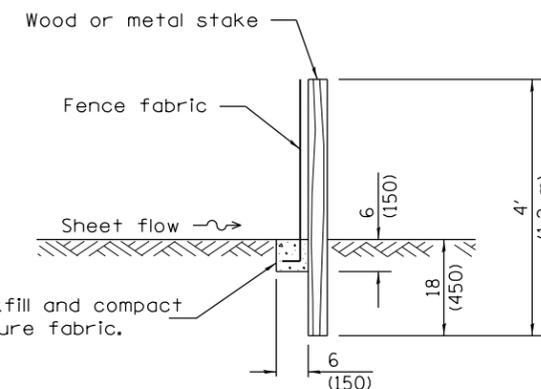


**ELEVATION**

**SILT FILTER FENCE AS A PERIMETER EROSION BARRIER**



**SLICE METHOD**



**TRENCH METHOD**

**SECTION A-A**

**GENERAL NOTES**

The installation details and dimensions shown for perimeter erosion barriers shall also apply for inlet and pipe protection.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-13	Corrected notation for flowline (E) on SEDIMENT BASIN ELEVATION.
1-1-12	Omitted hay/straw perimeter barrier. Added SLICE METHOD to SECTION A-A.

**TEMPORARY EROSION CONTROL SYSTEMS**

(Sheet 1 of 2)

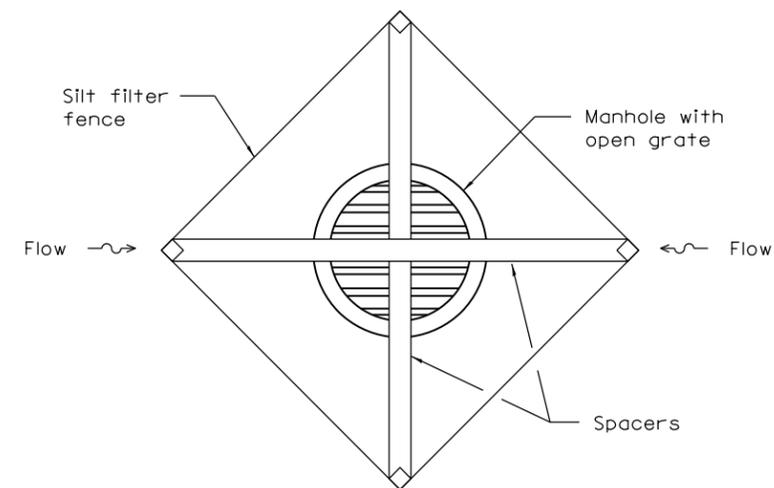
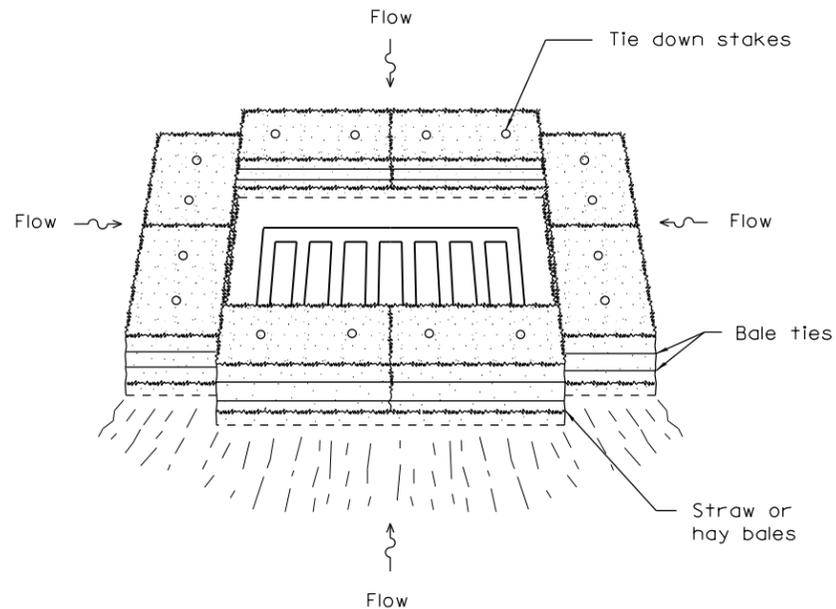
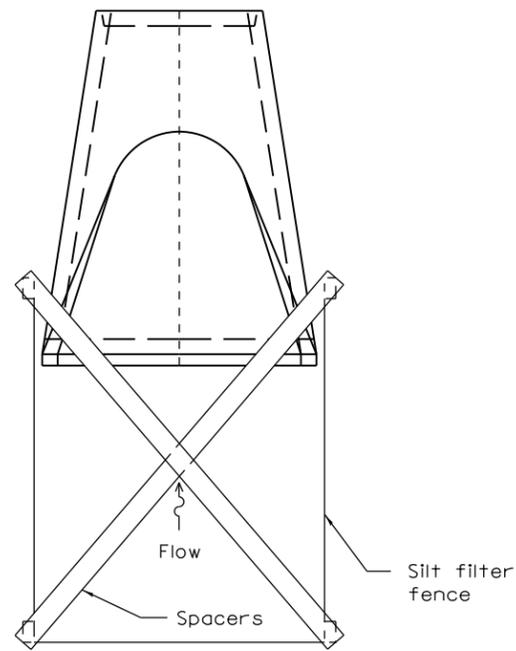
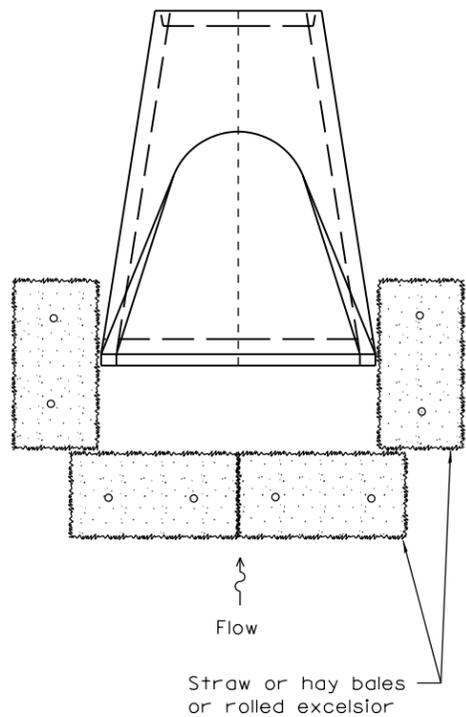
**STANDARD 280001-07**

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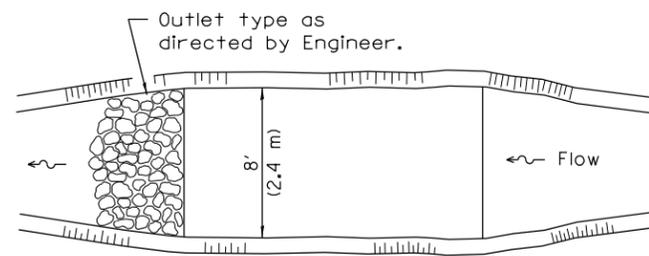
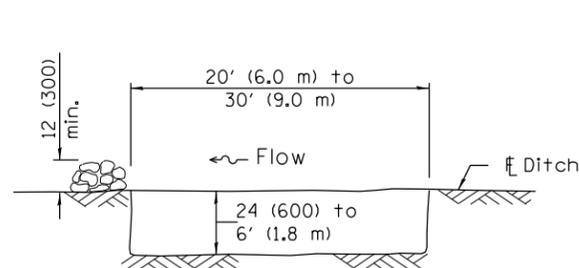
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**INLET AND PIPE PROTECTION**



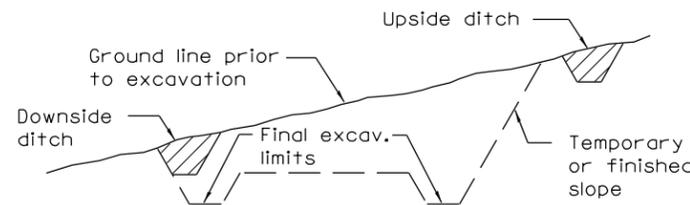
The performance of the basin will improve if put into a series.

The long dimension should be parallel with the direction of the flow. Accumulated silt shall be removed anytime the basins become 75% filled.

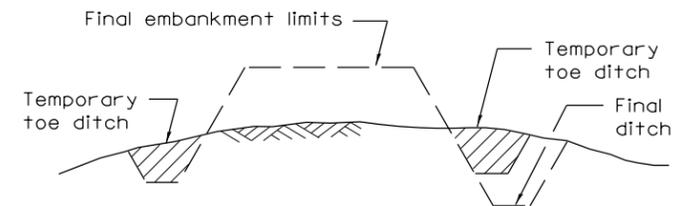
**ELEVATION**

**PLAN**

**SEDIMENT BASIN**



**TYPICAL CUT CROSS-SECTION**



**TYPICAL FILL CROSS-SECTION**

**TEMPORARY DITCHES FOR CUT & FILL SECTIONS**

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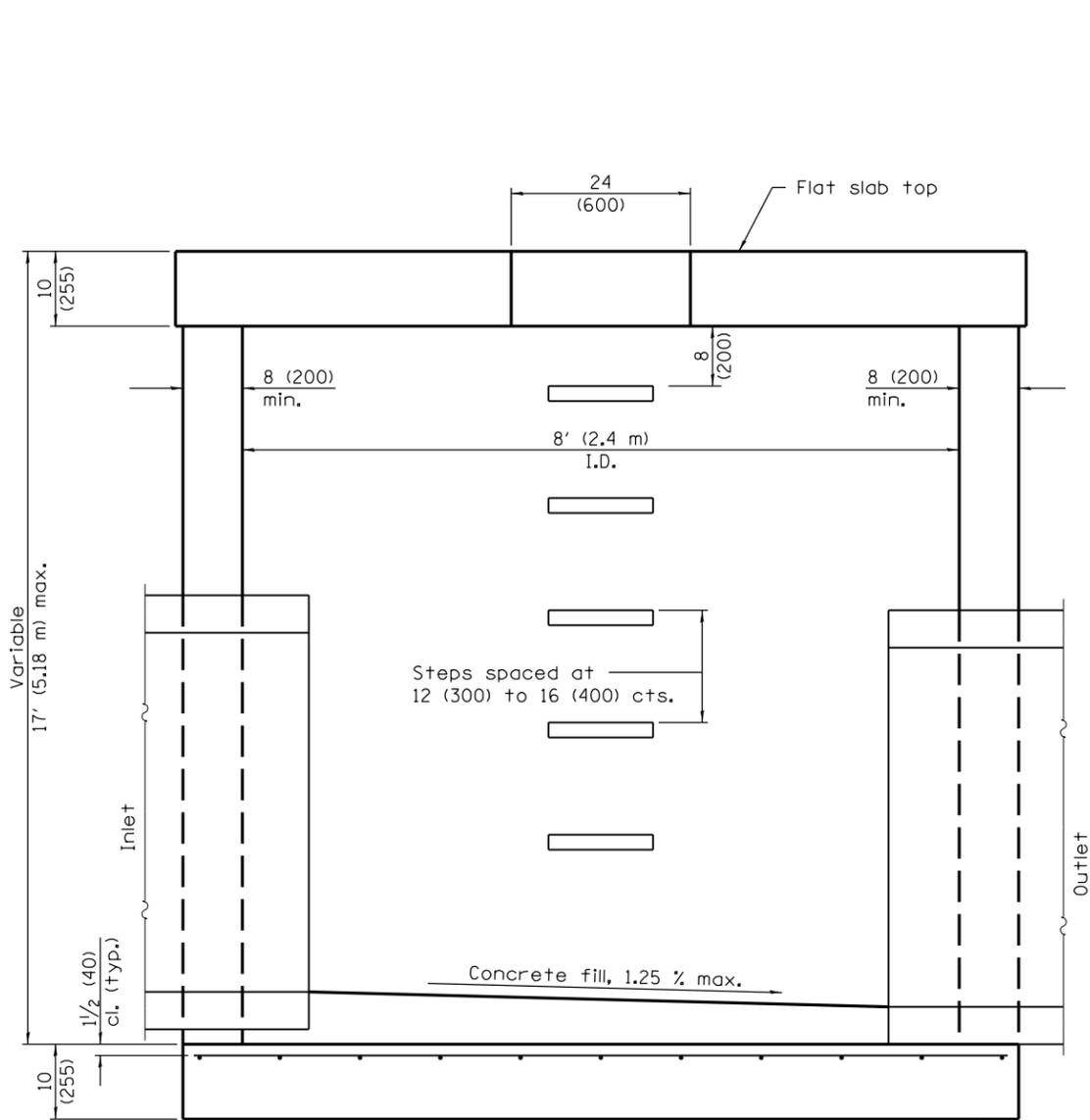
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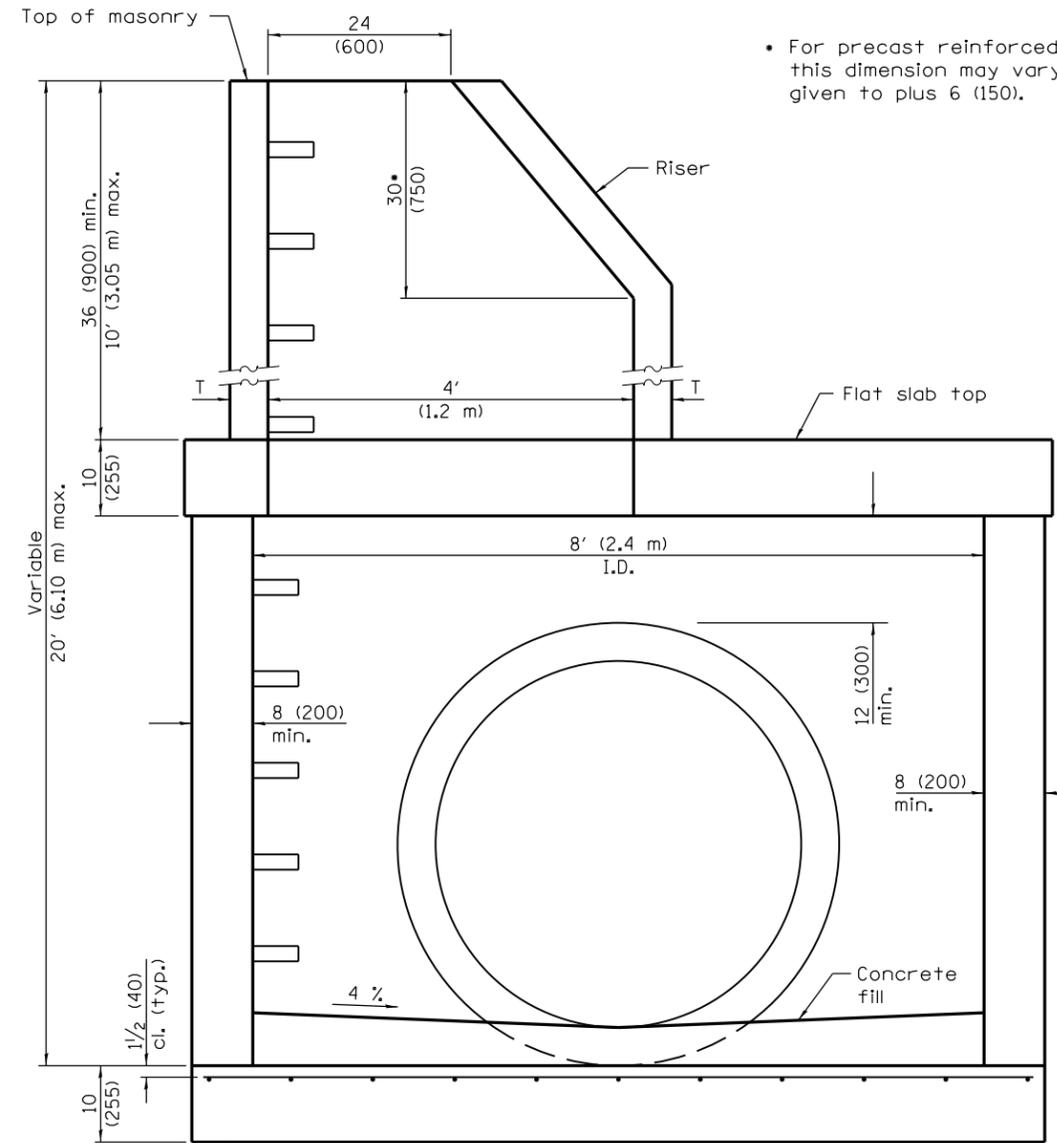
ISSUED 1-1-97

**TEMPORARY EROSION CONTROL SYSTEMS**  
 (Sheet 2 of 2)

**STANDARD 280001-07** 29 of 40

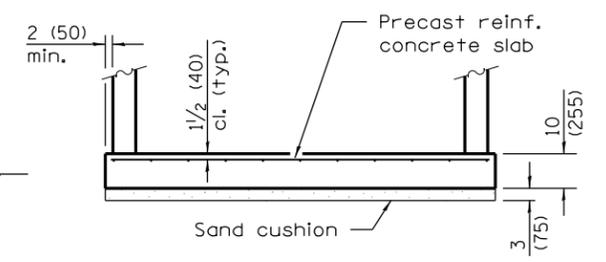
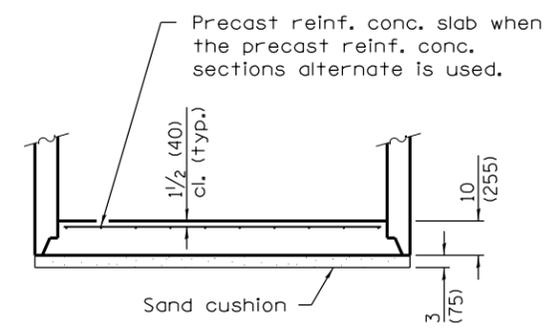


**ELEVATION**  
(With Flat Slab Top Only)



**ELEVATION**  
(With Flat Slab Top and Riser)

• For precast reinforced concrete sections, this dimension may vary from the dimension given to plus 6 (150).



**ALTERNATE BOTTOM SLABS**

**GENERAL NOTES**

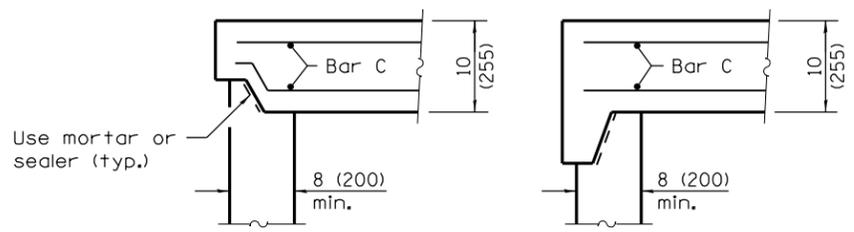
Joint configuration and dimensions of flat slab top shall match and fit the riser joint detail.

Bottom slabs shall be reinforced with a minimum of 0.34 sq. in./ft. (720 sq. mm/m) in both directions, with a maximum spacing of 11 (280).

Bottom slabs may be connected to the riser as determined by the fabricator; however, only a single row of reinforcement around the perimeter may be utilized.

See Standard 602701 for details of manhole steps.

All dimensions are in inches (millimeters) unless otherwise shown.



**ALTERNATE JOINT CONFIGURATIONS**

ALTERNATE MATERIALS FOR RISER WALLS	T (min)
Concrete Masonry Units	5 (125)
Precast Reinforced Concrete Sections	4 (100)
Cast-in-Place Concrete	6 (150)

DATE	REVISIONS
4-1-16	Changed terminology to 'welded wire reinforcement'.
1-1-14	Increased maximum heights.
	Revised General Notes.

**MANHOLE TYPE A**  
**8' (2.4 m) DIAMETER**

(Sheet 1 of 2)

**STANDARD 602416-05**

30 of 40

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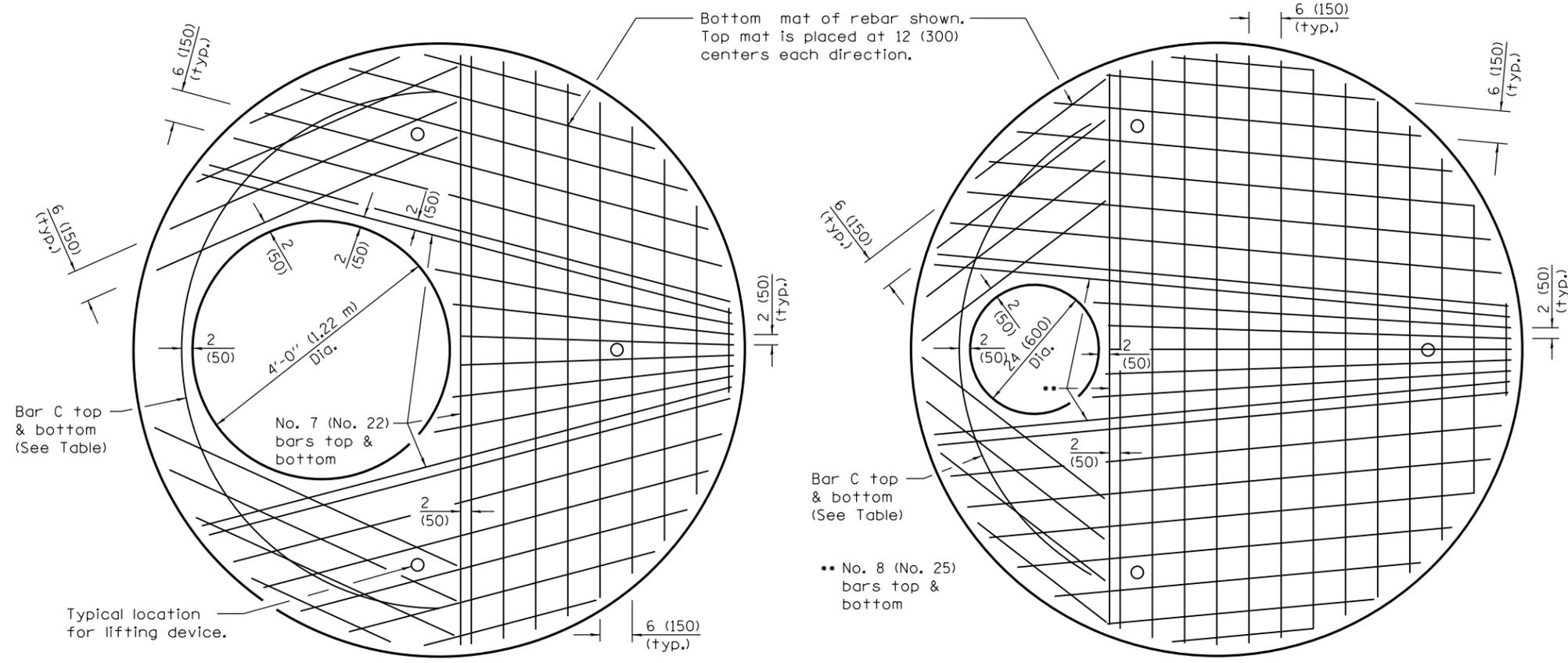
PASSED April 1, 2016

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ENGINEER OF POLICY AND PROCEDURES

APPROVED April 1, 2016

ENGINEER OF DESIGN AND ENVIRONMENT

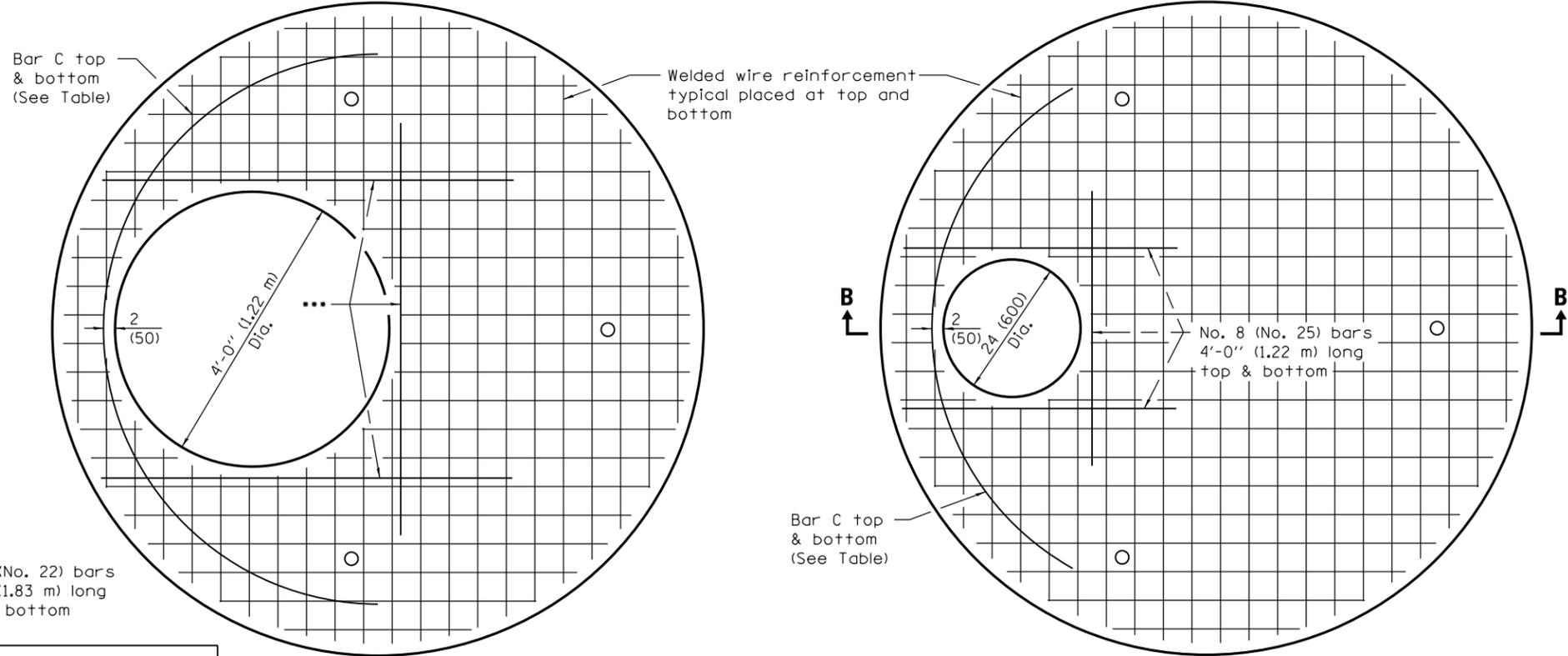
ISSUED 4-1-06



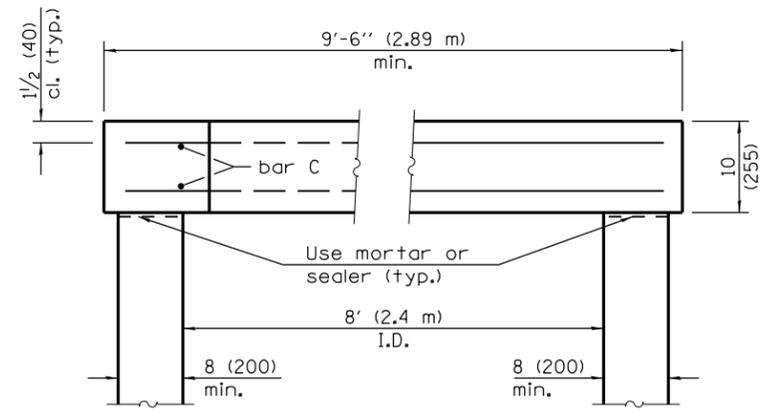
**PLAN**  
Showing Rebar Reinforcement

Diameter of opening	Reinforcement Bar Size	Reinforcement "As" WWR each direction	No. 4 (No. 13) Bar C	
			Length	Radius
24 (600)	Bottom mat No. 8 (No. 25)	Bottom mat **** 1.57 sq. in./ft. (3325 sq. mm/m)	8'-6" (2.60 m)	4'-0" (1.219 m)
	Top mat No. 4 (No. 13)	Top mat **** 0.22 sq. in./ft. (470 sq. mm/m)		
4'-0" (1.2 m)	Bottom mat No. 7 (No. 22)	Bottom mat **** 1.20 sq. in./ft. (2540 sq. mm/m)	12'-6" (3.80 m)	4'-0" (1.219 m)
	Top mat No. 4 (No. 13)	Top mat **** 0.22 sq. in./ft. (470 sq. mm/m)		

\*\*\*\* A maximum of two layers of welded wire reinforcement may be used to satisfy the required "As" for each mat.



**PLAN**  
Showing Welded Wire Reinforcement



**SECTION B-B**

\*\*\* No. 7 (No. 22) bars 6'-0" (1.83 m) long top & bottom

Illinois Department of Transportation

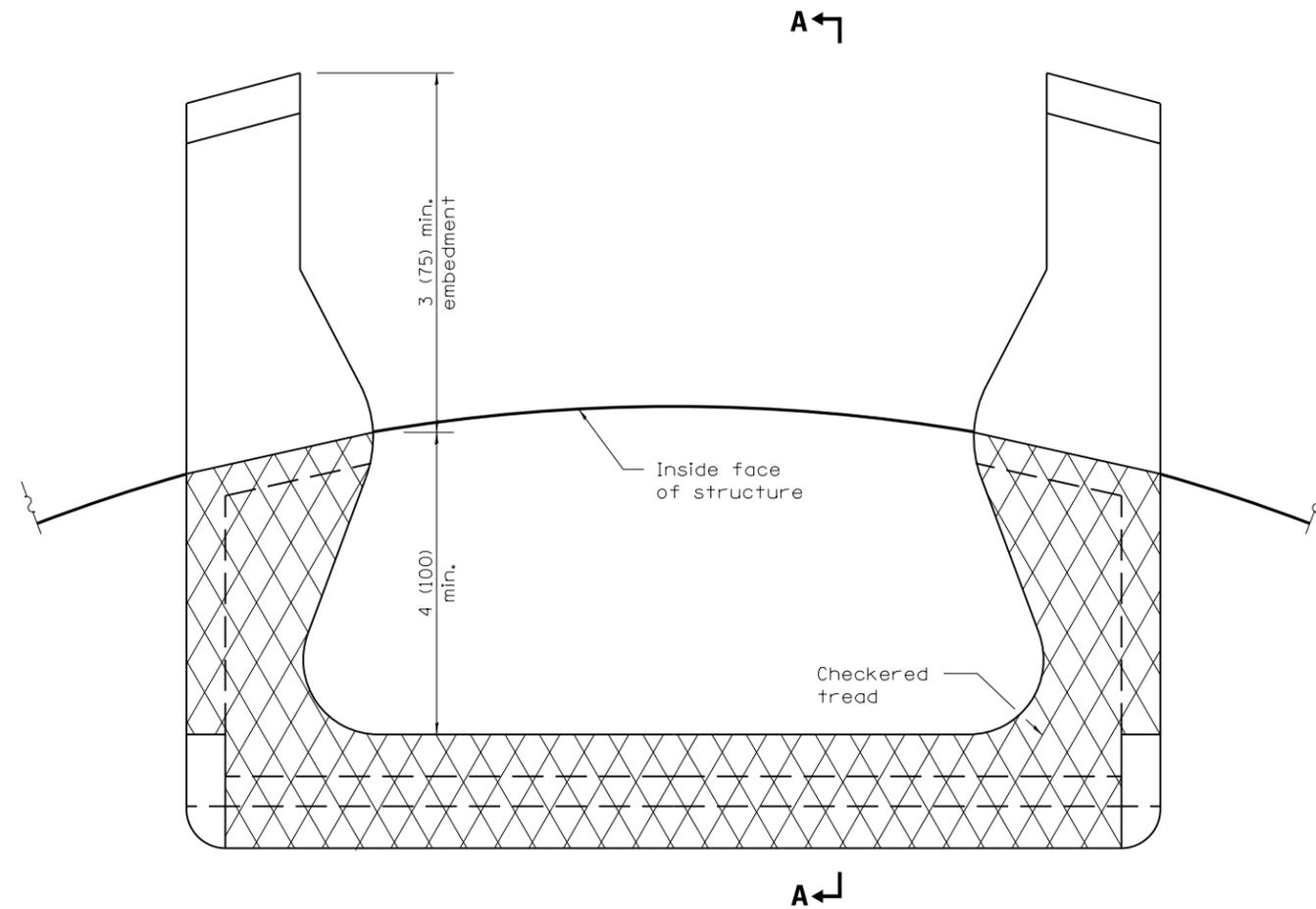
PASSED April 1, 2016  
*Michael Beard*  
 ENGINEER OF POLICY AND PROCEDURES

APPROVED April 1, 2016  
*[Signature]*  
 ENGINEER OF DESIGN AND ENVIRONMENT

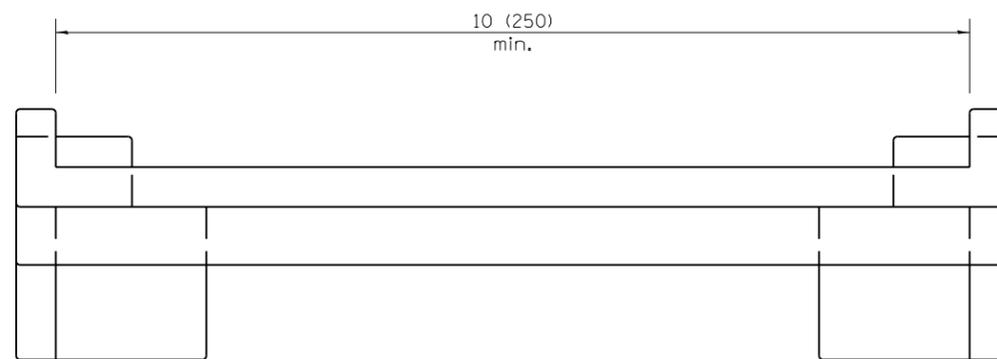
ISSUED 4-1-06

**MANHOLE TYPE A**  
**8' (2.4 m) DIAMETER**  
 (Sheet 2 of 2)

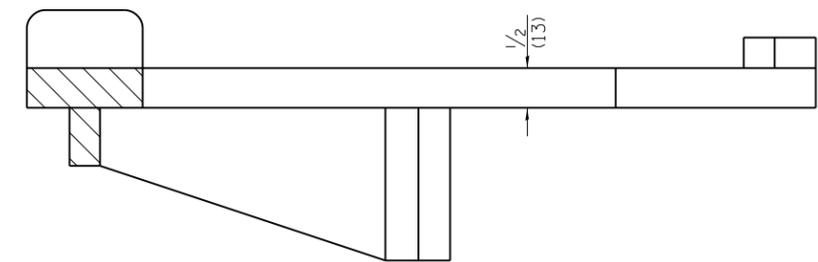
**STANDARD 602416-05** 31 of 40



**PLAN VIEW**



**ELEVATION VIEW**



**SECTION A-A**

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009

ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2009

ENGINEER OF DESIGN AND ENVIRONMENT

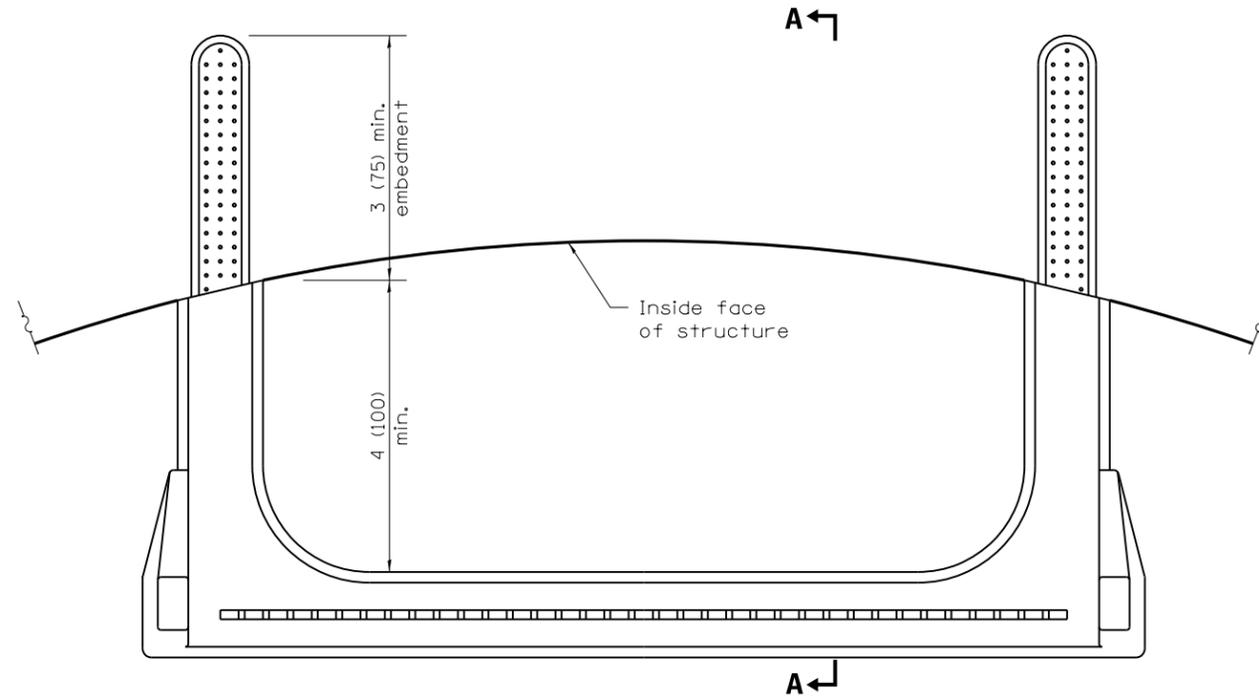
ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric).
4-1-06	Revised title, drawings, and added plastic steps on sheet 2.

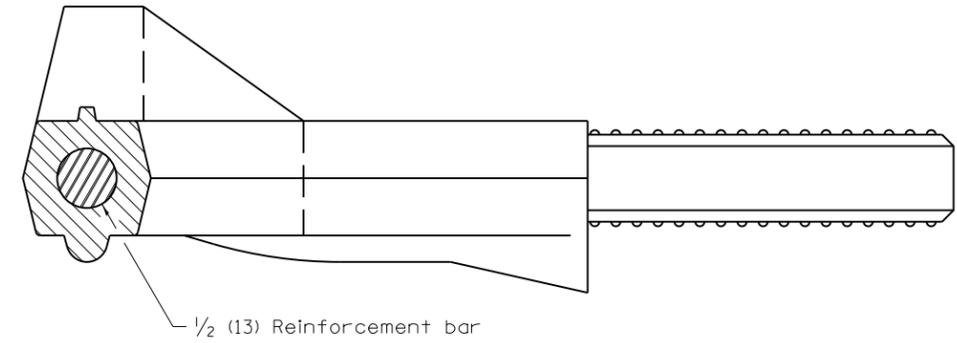
**MANHOLE STEPS**

(Sheet 1 of 2)

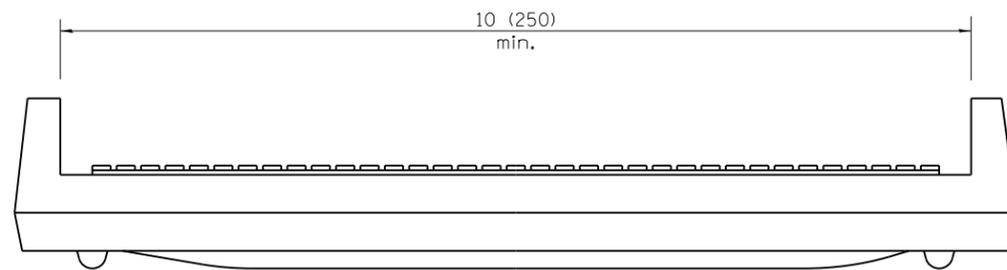
**STANDARD 602701-02**



**PLAN VIEW**



**SECTION A-A**



**ELEVATION VIEW**

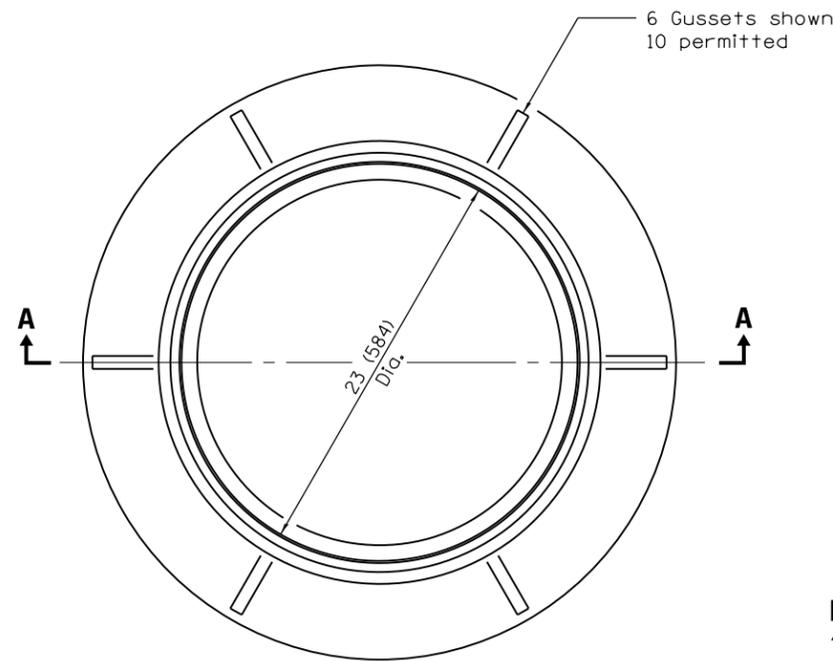
Illinois Department of Transportation  
PASSED January 1, 2009  
ENGINEER OF POLICY AND PROCEDURES  
APPROVED January 1, 2009  
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

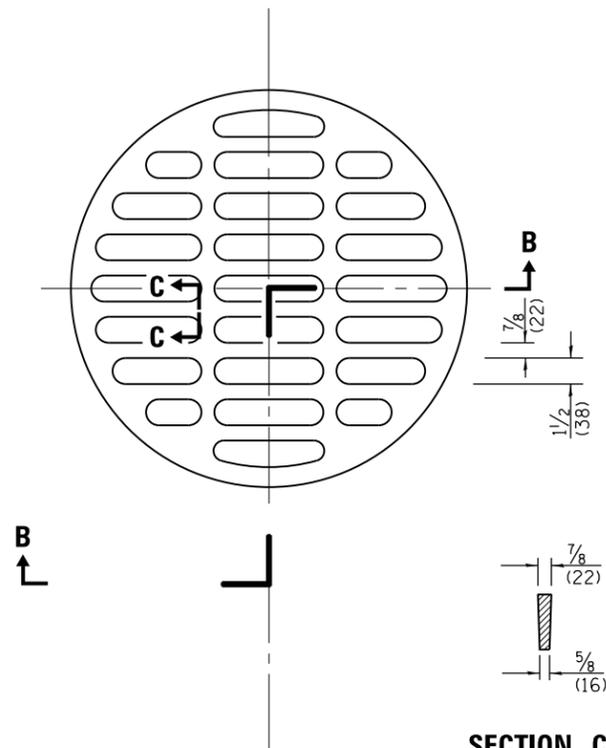
**MANHOLE STEPS**

(Sheet 2 of 2)

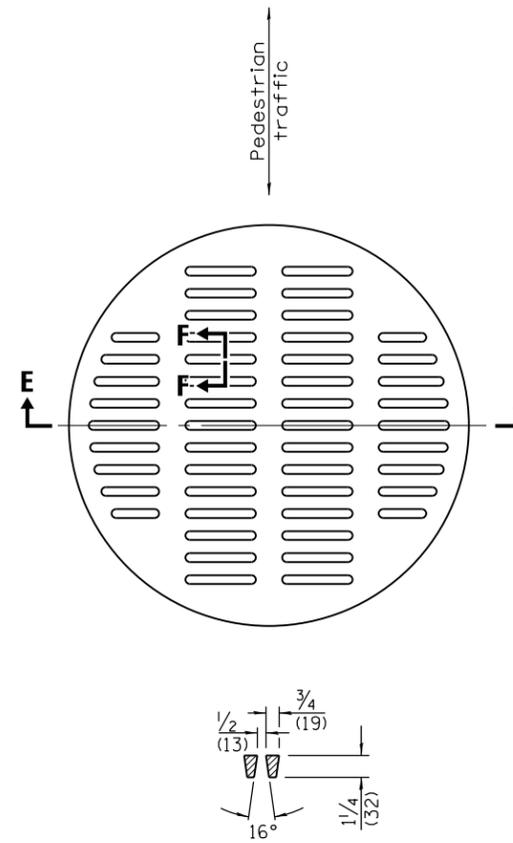
**STANDARD 602701-02**



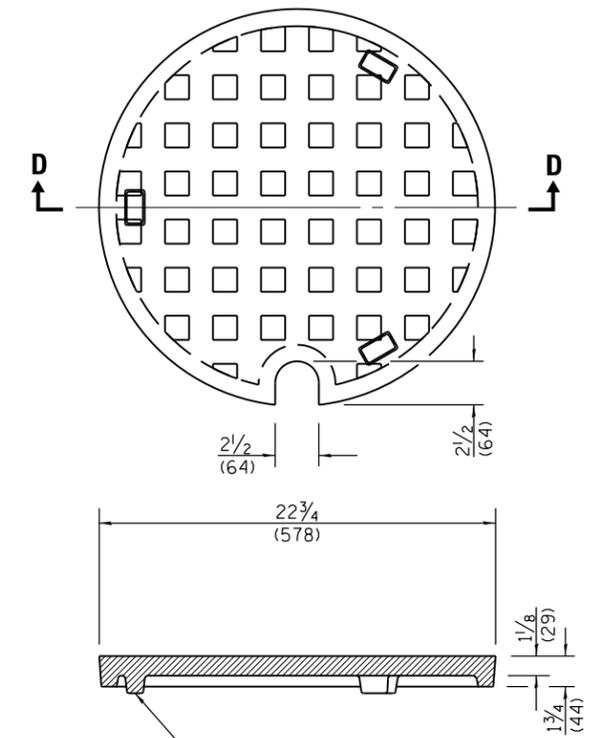
**CAST FRAME**



**SECTION C-C**

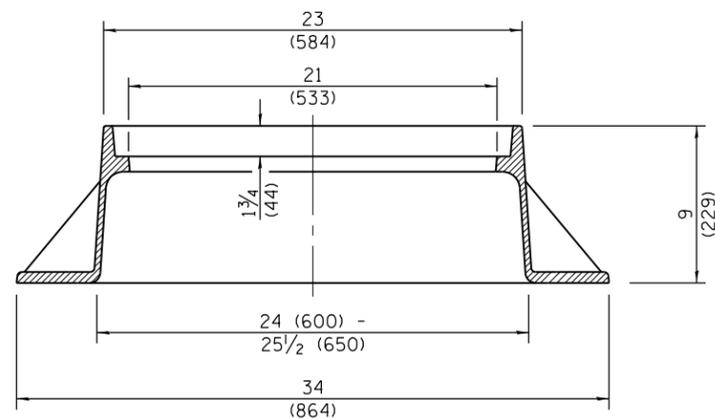


**SECTION F-F**

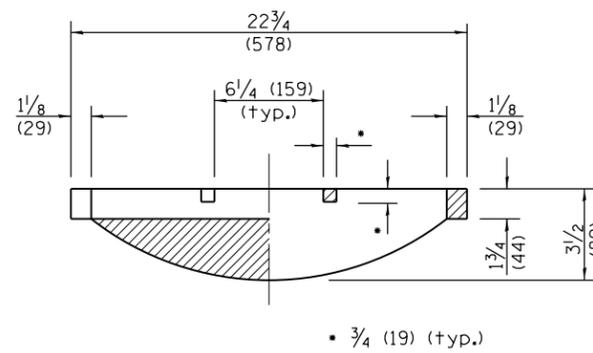


**SECTION D-D**

**CAST CLOSED LID**  
Gray Iron Lid

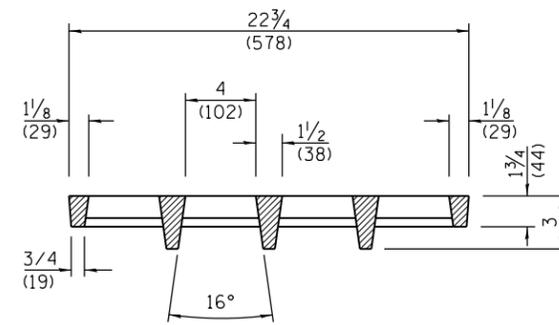


**SECTION A-A**  
Gray Iron



**SECTION B-B**

**CAST OPEN LID**



**SECTION E-E**

**ADA COMPLIANT  
CAST OPEN LID**

All dimensions are in inches (millimeters)  
unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2015

Michael Beard  
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2015

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-15  
46-1-19

DATE	REVISIONS
1-1-15	Revised dimensioning of frame. Added ADA compliant open lid.
1-1-09	Switched units to English (metric).

**FRAME AND LIDS  
TYPE 1**

**STANDARD 604001-04**



**TYPICAL APPLICATIONS**

- Landscaping work
- Utility work
- Fencing contracts and maintenance
- Cleaning culverts

**GENERAL NOTES**

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701006.

All dimensions are in inches (millimeters) unless otherwise shown.

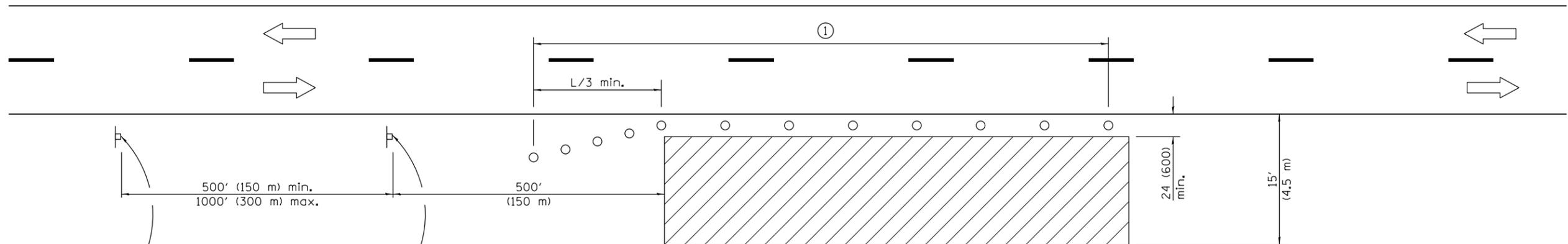
 Illinois Department of Transportation  
 APPROVED                      January 1, 2009  
 ENGINEER OF OPERATIONS  
 APPROVED                      January 1, 2009  
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-09	Switched units to English (metric).
1-1-05	Revised title and notes.

**OFF-RD OPERATIONS,  
2L, 2W, MORE THAN  
15' (4.5 m) AWAY**

**STANDARD 701001-02**



For contract construction projects



W20-I103(O)-48



W21-1(O)-48

For maintenance and utility projects



W20-1(O)-48

**TYPICAL APPLICATIONS**

- Utility operations
- Culvert extensions
- Side slope changes
- Guardrail installation and maintenance
- Delineator installation
- Landscaping operations
- Shoulder repair
- Sign installation and maintenance

**SYMBOLS**

- Work area
- Sign
- Cone, drum or barricade

① When the work operation exceeds one hour, cones, drums or barricades shall be placed at 25' (8 m) centers for L/3 distance, and at 50' (15 m) centers through the remainder of the work area.

**GENERAL NOTES**

This Standard is used where any vehicles, equipment, workers or their activities will encroach in the area 15' (4.5 m) to 24' (600) from the edge of pavement.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).  
 S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-14	Revised workers sign number to agree with current MUTCD.
1-1-13	Omitted text 'WORKERS' sign.

**OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE**

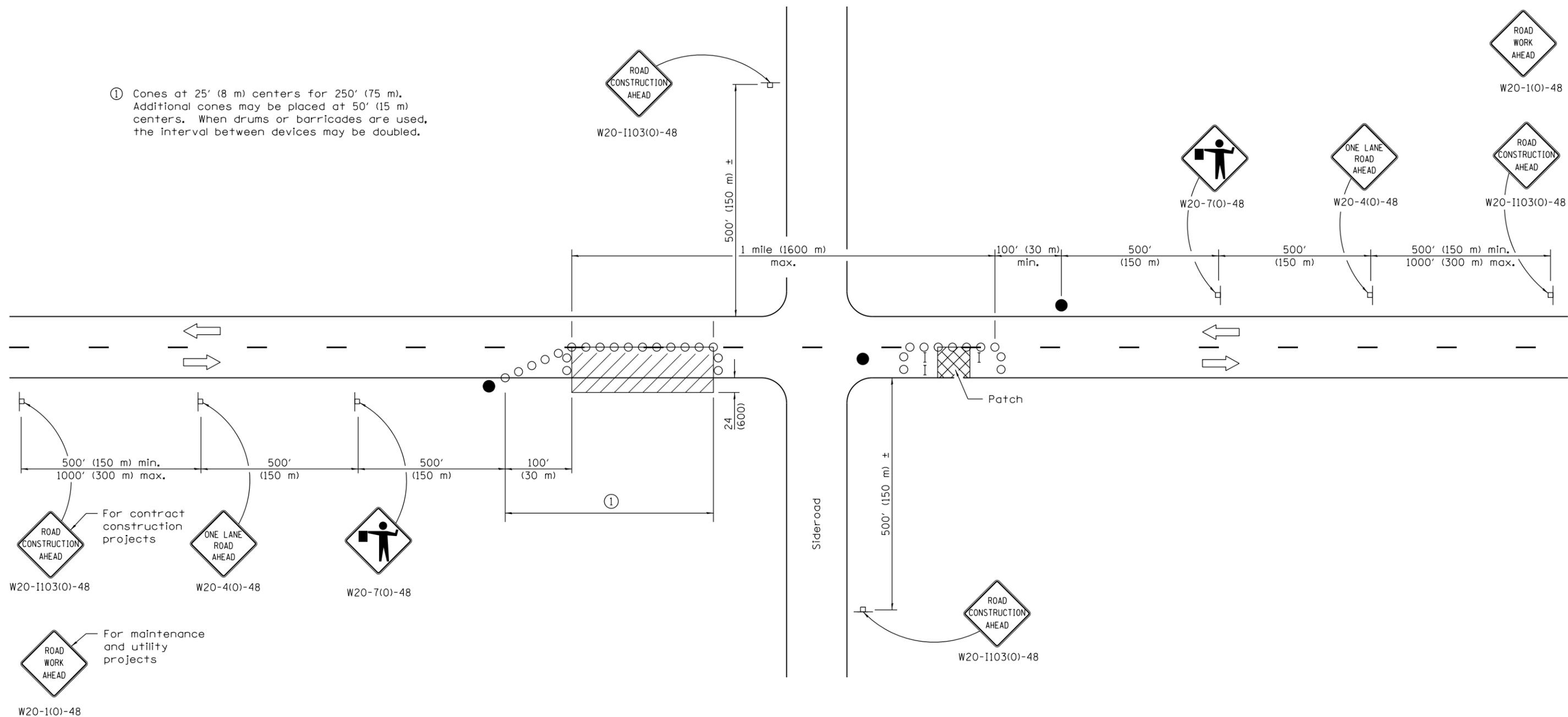
Illinois Department of Transportation

APPROVED January 1, 2014  
*[Signature]*  
 ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2014  
*[Signature]*  
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

① Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or barricades are used, the interval between devices may be doubled.



**TYPICAL APPLICATIONS**

Isolated patching  
Utility operations  
Storm sewer  
Culverts  
Cable placement

**SYMBOLS**

-  Work area
-  Sign
-  Barricade or drum
-  Cone, drum or barricade
-  Flagger with traffic control sign

**GENERAL NOTES**

This Standard is used where at any time, any vehicles, equipment, workers or their activities will encroach in the area between the center line and a line 24 (600) outside the edge of pavement for daylight operation.

When the distance between successive work areas exceeds 2000' (600 m), additional warning signs, flaggers, and taper shall be placed as shown.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2011  
ENGINEER OF SAFETY ENGINEERING

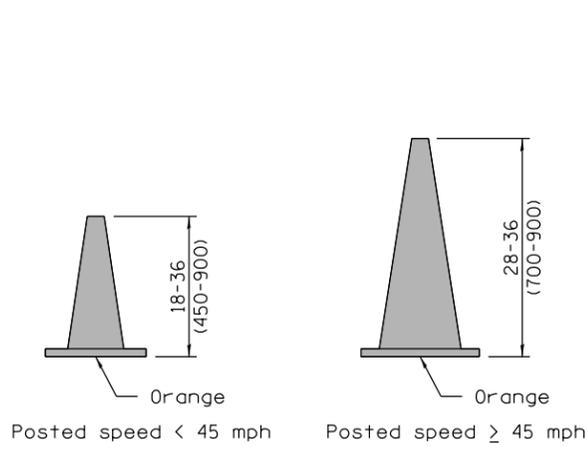
APPROVED January 1, 2011  
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

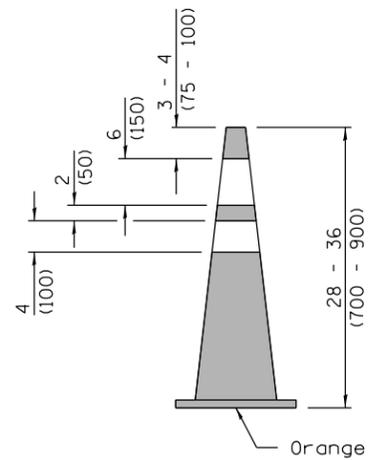
DATE	REVISIONS
1-1-11	Revised flagger sign.
1-1-09	Switched units to English (metric).
	Corrected sign No.'s.

**LANE CLOSURE, 2L, 2W,  
DAY ONLY,  
FOR SPEEDS ≥ 45 MPH**

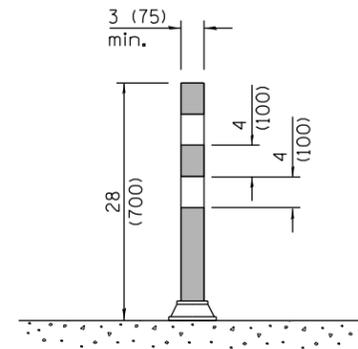
**STANDARD 701201-04** 37 of 40



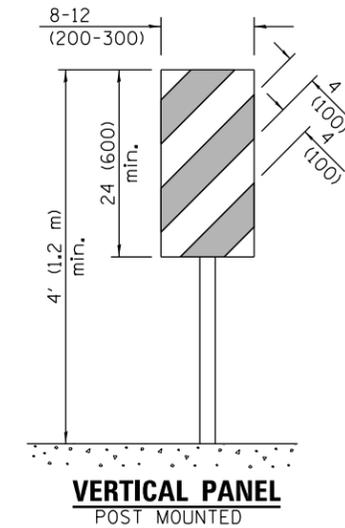
**CONE FOR DAYTIME**



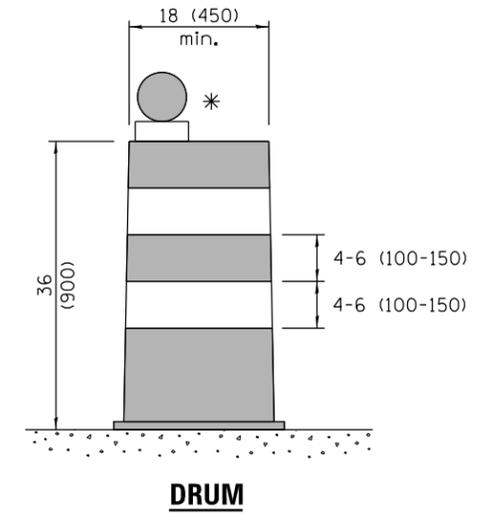
**REFLECTORIZED CONE FOR NIGHTTIME**



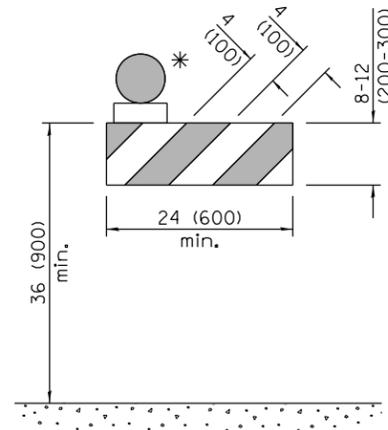
**FLEXIBLE DELINEATOR**



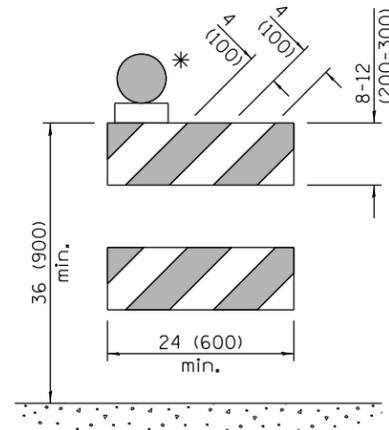
**VERTICAL PANEL POST MOUNTED**



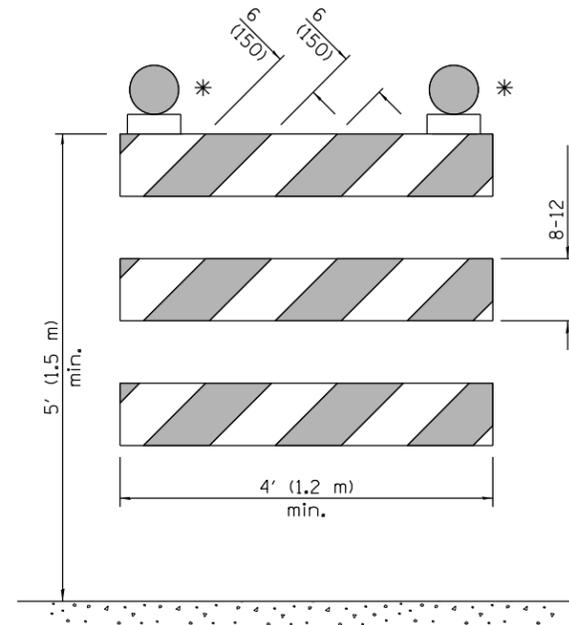
**DRUM**



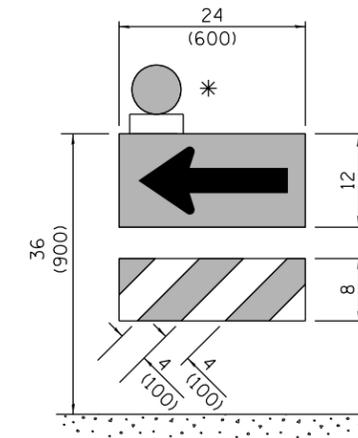
**TYPE I BARRICADE**



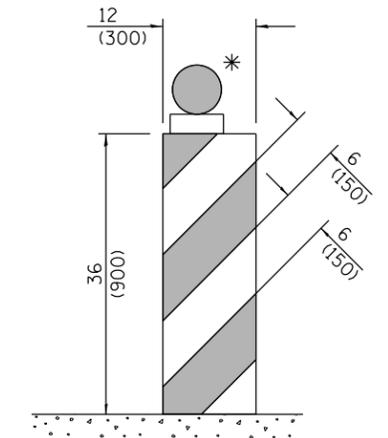
**TYPE II BARRICADE**



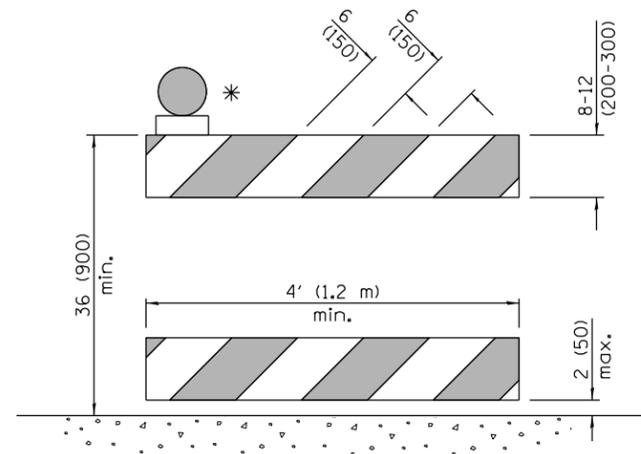
**TYPE III BARRICADE**



**DIRECTION INDICATOR BARRICADE**



**VERTICAL BARRICADE**



**DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE**

\* Warning lights (if required)

**GENERAL NOTES**

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
4-1-16	Add dim's to barricades. Rev. note for post mnt. signs.
	Rev. cone dtls. Add W12-I103.
1-1-15	Revised two sign numbers on sheet 2. Added note reg. PHOTO ENFORCED plaque.

**TRAFFIC CONTROL DEVICES**

(Sheet 1 of 3)

**STANDARD 701901-05**

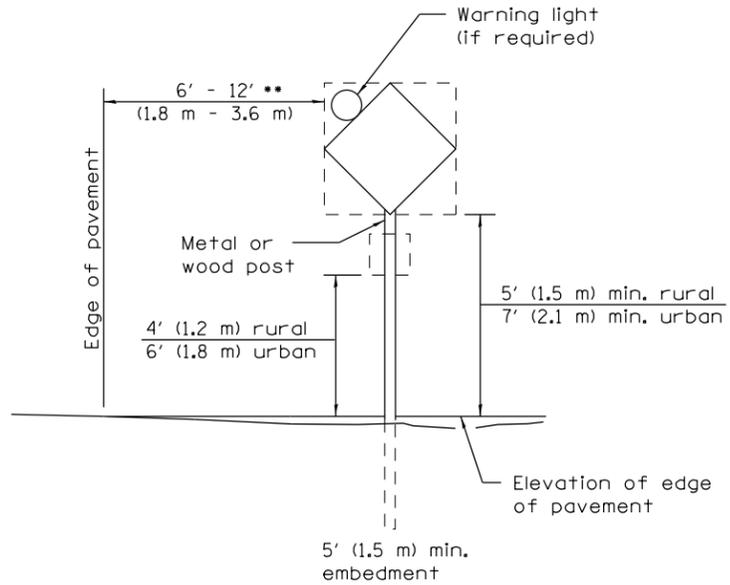
38 of 40

Illinois Department of Transportation

APPROVED April 1, 2016  
*Amy Ellis*  
 ENGINEER OF OPERATIONS

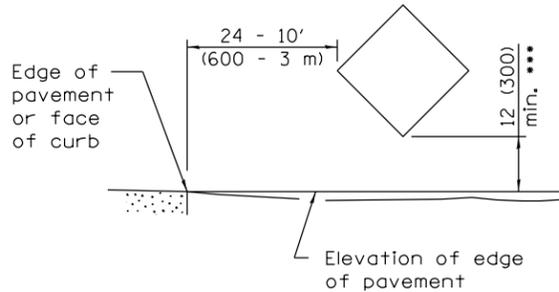
APPROVED April 1, 2016  
*[Signature]*  
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 46-1-1 03/15/11



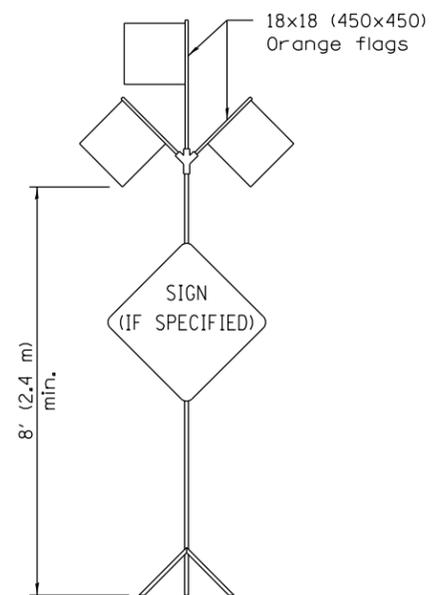
**POST MOUNTED SIGNS**

\*\* When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.

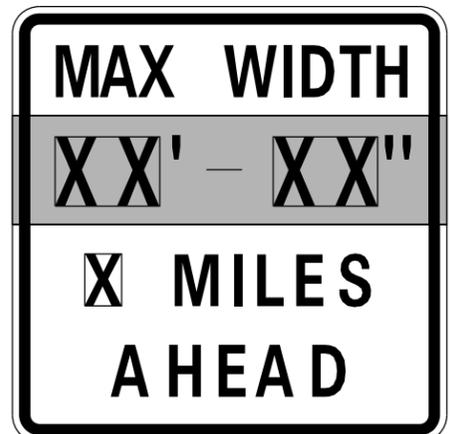


**SIGNS ON TEMPORARY SUPPORTS**

\*\*\* When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



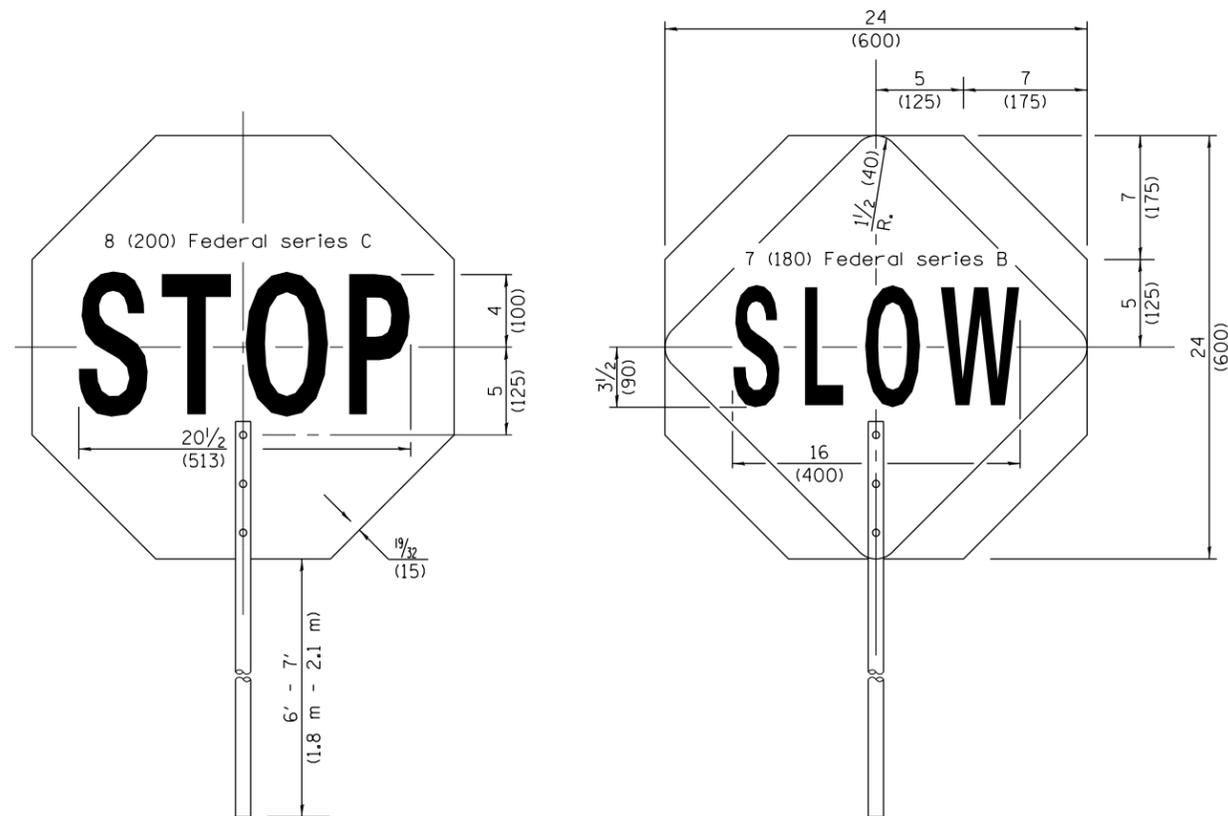
**HIGH LEVEL WARNING DEVICE**



W12-I103-4848

**WIDTH RESTRICTION SIGN**

XX'-XX" width and X miles are variable.



FRONT SIDE

REVERSE SIDE

**FLAGGER TRAFFIC CONTROL SIGN**

ROAD CONSTRUCTION NEXT X MILES	END CONSTRUCTION
G20-I104(0)-6036	G20-I105(0)-6024

This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

**WORK LIMIT SIGNING**

WORK ZONE	W21-I115(0)-3618
SPEED LIMIT XX	R2-1-3648
PHOTO ENFORCED	R10-I108p-3618 ****
\$XXX FINE MINIMUM	R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.

END WORK ZONE SPEED LIMIT	G20-I103(0)-6036
---------------------------	------------------

This sign shall be used when the above sign assembly is used.

**HIGHWAY CONSTRUCTION SPEED ZONE SIGNS**

\*\*\*\* R10-I108p shall only be used along roadways under the jurisdiction of the State.

**TRAFFIC CONTROL DEVICES**

(Sheet 2 of 3)

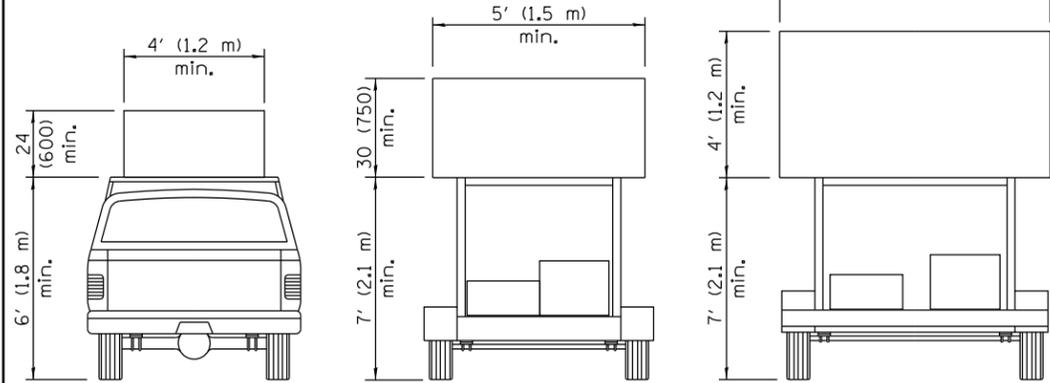
STANDARD 701901-05

Illinois Department of Transportation

APPROVED April 1, 2016  
*Amy Ellis*  
 ENGINEER OF OPERATIONS

APPROVED April 1, 2016  
*[Signature]*  
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97  
 46-1-1

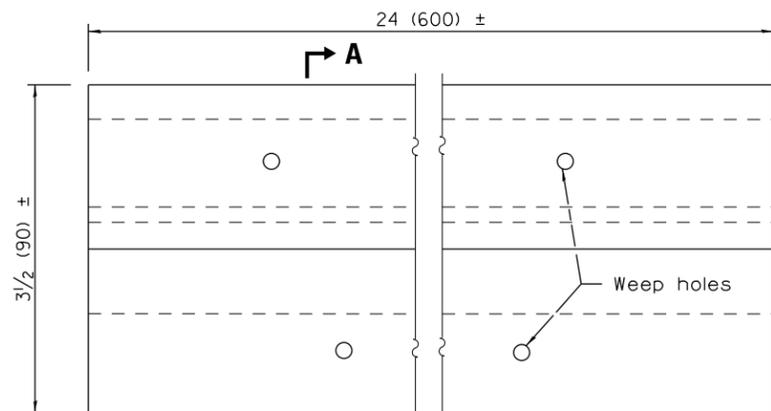


**TYPE A  
ROOF  
MOUNTED**

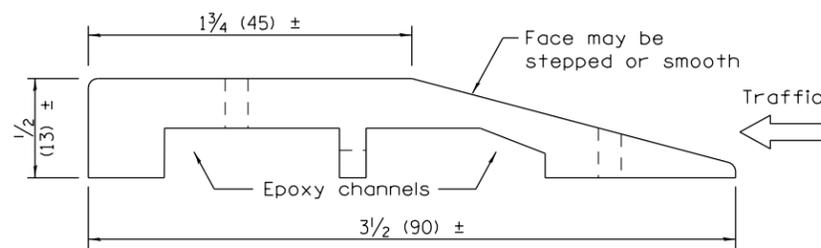
**TYPE B  
ROOF OR TRAILER  
MOUNTED**

**TYPE C  
TRAILER  
MOUNTED**

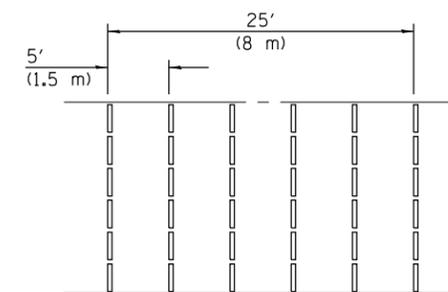
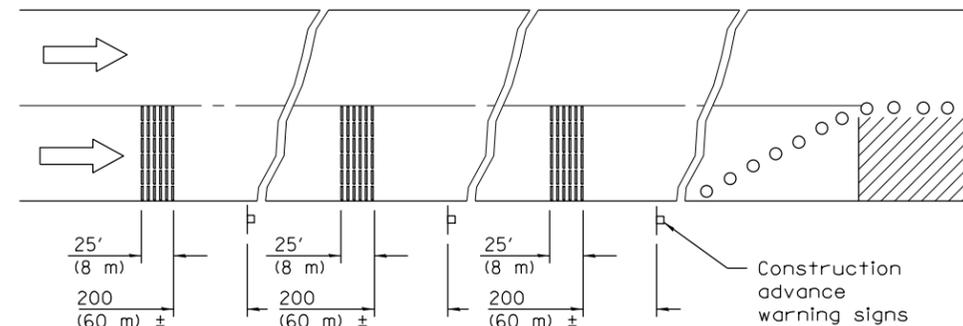
**ARROW BOARDS**



**PLAN**

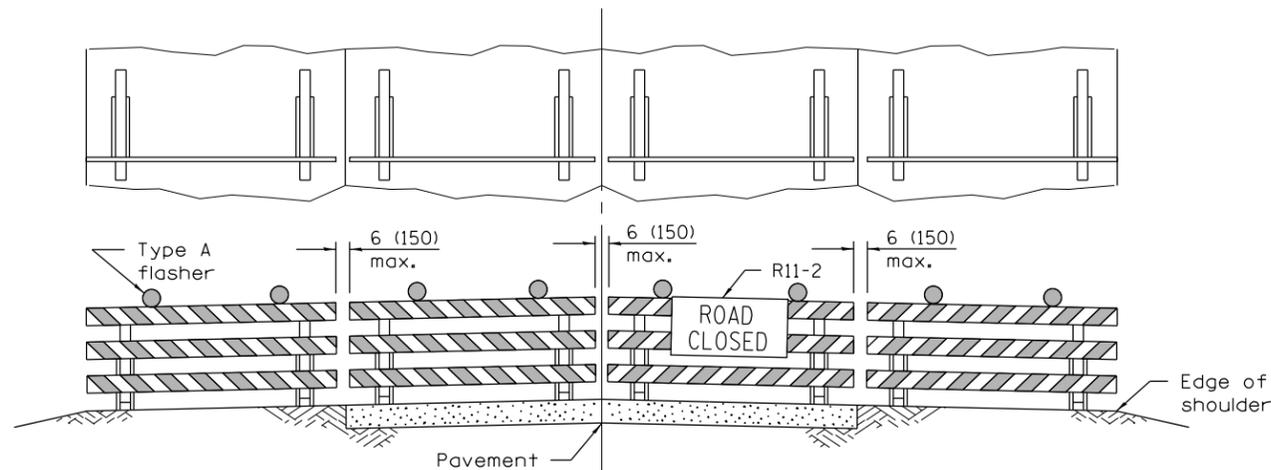


**SECTION A-A**



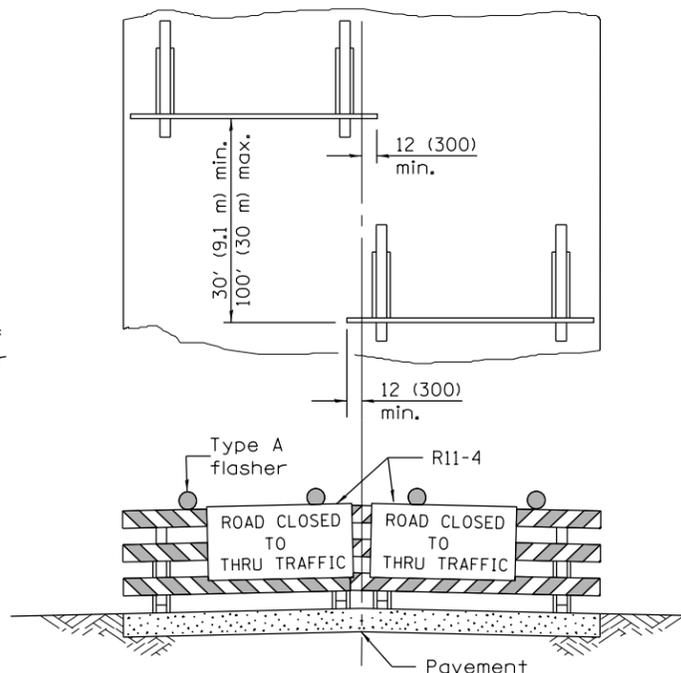
**TYPICAL INSTALLATION**

**TEMPORARY RUMBLE STRIPS**



**ROAD CLOSED TO ALL TRAFFIC**

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



**ROAD CLOSED TO THRU TRAFFIC**

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

**TYPICAL APPLICATIONS OF  
TYPE III BARRICADES CLOSING A ROAD**

**TRAFFIC CONTROL  
DEVICES**

(Sheet 3 of 3)

**STANDARD 701901-05**

40 of 40

Illinois Department of Transportation

APPROVED April 1, 2016  
*Amy Ellis*  
 ENGINEER OF OPERATIONS

APPROVED April 1, 2016  
*[Signature]*  
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97  
 46-1-1