

| RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|------|---------|----------|--------------------|-----------|
| * | ** | CRAWFORD | 10 | 1 |
| | | ILLINOIS | CONTRACT NO. 74A85 | |

• TR 183A (1000TH AVENUE)
 ** D7 ENTRANCE CULVERTS 2022-1
 D-97-116-21

FOR INDEX OF SHEETS, SEE SHEET NO. 2

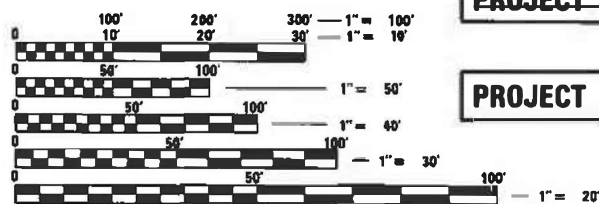
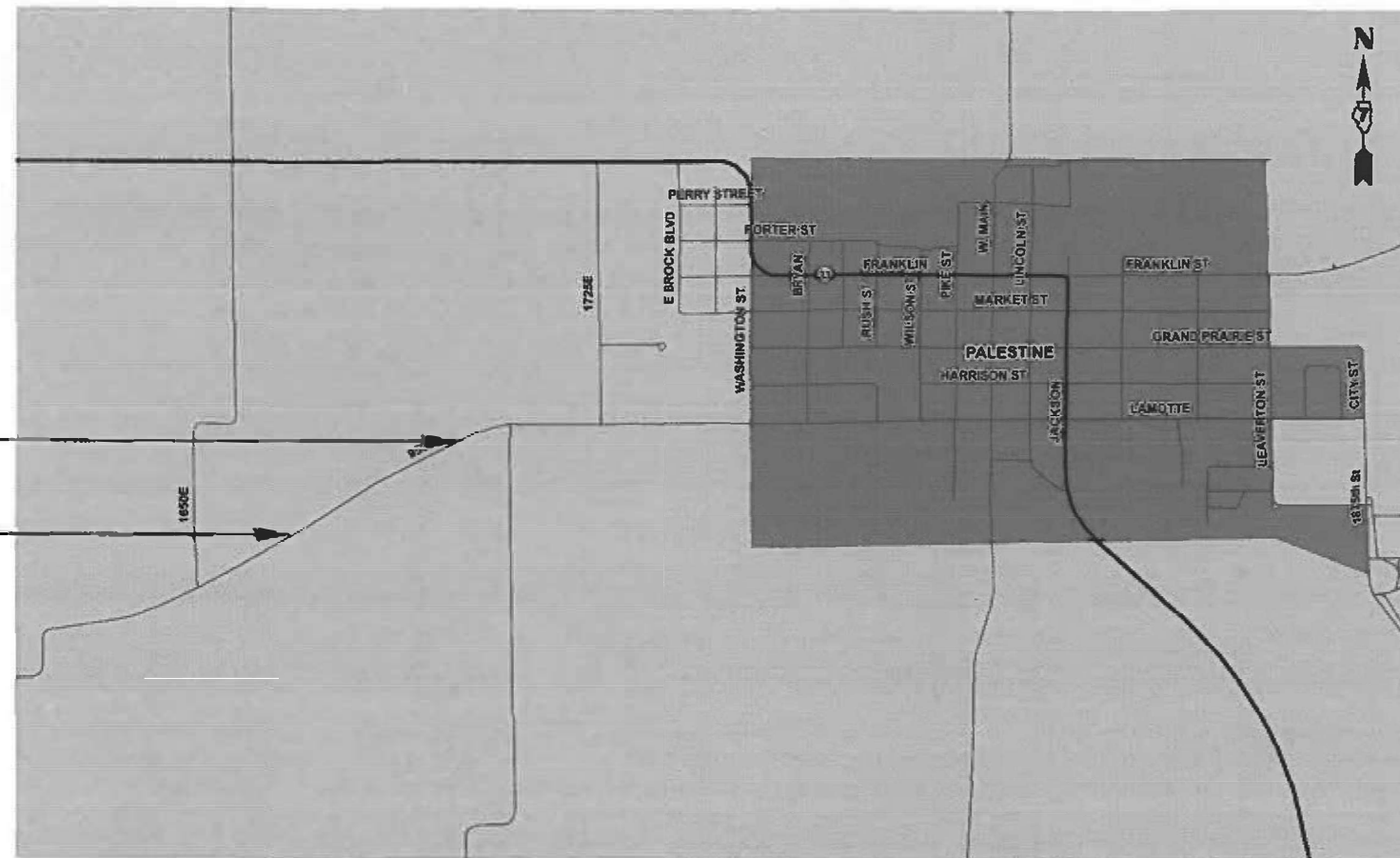
ADT = 450

DEPARTMENT OF TRANSPORTATION

PROPOSED HIGHWAY PLANS

TR 183A (1000TH AVE)
 SECTION D7 ENTRANCE CULVERTS 2022-1
 CULVERT REPLACEMENTS
 CRAWFORD COUNTY

C-97-185-21



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS
 1-800-892-0123
 OR 811

PROJECT ENGINEER BRIAN LEWIS
 PROJECT MANAGER BENJAMIN J. DETERS

CONTRACT NO. 74A85

GROSS LENGTH = 1930.00 FT. = 0.366 MILE
 NET LENGTH = 1930.00 FT. = 0.366 MILE

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

SUBMITTED FEBRUARY 9 2023
Jeffrey P. Myerlos
 REGIONAL ENGINEER

March 24, 2023
Scott A. Etk
 ENGINEER OF DESIGN AND ENVIRONMENT

March 24, 2023
Steph M. Smith
 DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
 OF THE STATE OF ILLINOIS

| SUMMARY OF QUANTITIES | | | TOTAL QUANTITIES | CONSTRUCTION TYPE CODE | | |
|-----------------------|---|-------|------------------|------------------------|--|--|
| CODE NO | ITEM | UNIT | | 0004 100% STATE | | |
| 20400800 | FURNISHED EXCAVATION | CU YD | 792 | 792 | | |
| 20700110 | POROUS GRANULAR EMBANKMENT | TON | 808 | 808 | | |
| 28100107 | STONE RIPRAP, CLASS A4 | SQ YD | 326 | 326 | | |
| 28200200 | FILTER FABRIC | SQ YD | 326 | 326 | | |
| 40200800 | AGGREGATE SURFACE COURSE, TYPE B | TON | 74 | 74 | | |
| 54001001 | BOX CULVERT END SECTIONS, CULVERT NO. 1 | EACH | 2 | 2 | | |
| 54001002 | BOX CULVERT END SECTIONS, CULVERT NO. 2 | EACH | 2 | 2 | | |
| 54001003 | BOX CULVERT END SECTIONS, CULVERT NO. 3 | EACH | 2 | 2 | | |
| 54001004 | BOX CULVERT END SECTIONS, CULVERT NO. 4 | EACH | 2 | 2 | | |
| 54001005 | BOX CULVERT END SECTIONS, CULVERT NO. 5 | EACH | 2 | 2 | | |
| 54011006 | PRECAST CONCRETE BOX CULVERTS 10' X 6' | FOOT | 48 | 48 | | |
| 54011206 | PRECAST CONCRETE BOX CULVERTS 12' X 6' | FOOT | 116 | 116 | | |
| 59100100 | GEOCOMPOSITE WALL DRAIN | SQ YD | 166 | 166 | | |
| 67100100 | MOBILIZATION | L SUM | 1 | 1 | | |

| SUMMARY OF QUANTITIES | | | TOTAL QUANTITIES | CONSTRUCTION TYPE CODE | | |
|-----------------------|---|-------|------------------|------------------------|--|--|
| CODE NO | ITEM | UNIT | | 0004 100% STATE | | |
| 70100450 | TRAFFIC CONTROL AND PROTECTION, STANDARD | L SUM | 1 | 1 | | |
| | 701201 | | | | | |
| X6350108 | FLEXIBLE DELINEATORS | EACH | 20 | 20 | | |
| X5810103 | MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES | SQ YD | 166 | 166 | | |
| X2501000 | SEEDING, CLASS 2 (SPECIAL) | ACRE | 0.5 | 0.5 | | |
| X5015225 | PIPE CULVERT REMOVAL (SPECIAL) | FOOT | 98 | 98 | | |

REV. - MS

MODEL: Default
 FILE: Mainfile
 PLOT DATE: 2/8/2023
 PROJECT: 74A85 (CADD) DataCAD Sheets 74A85-1b-500.dgn

| | | |
|-------------------------------|------------|------------|
| USER NAME = jessica.Hille | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000 ' / in. | DRAWN - | REVISIED - |
| PLOT DATE = 2/8/2023 | CHECKED - | REVISIED - |
| | DATE - | REVISIED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|------------|---------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| ** | * | CRAWFORD | 10 | 3 |
| ** TR 183A | | CONTRACT NO. 74A85 | | |

| | * AREA PER END SECTION (SQ FT) | STONE RIPRAP, CLASS A4 (SQ YD) | FILTER FABRIC (SQ YD) |
|------------|---|---|-----------------------------|
| LOCATION 1 | 30.9 | 61.7 | 61.7 |
| LOCATION 2 | 30.9 | 61.7 | 61.7 |
| LOCATION 3 | 33.7 | 67.4 | 67.4 |
| LOCATION 4 | 33.7 | 67.4 | 67.4 |
| LOCATION 5 | 33.7 | 67.4 | 67.4 |
| | TOTAL = | 325.6 | 325.6 |
| | ROUND TO: | 326.0 | 326.0 |

* - MEASURED IN CAD

| | * WIDTH (FOOT) | LENGTH (FOOT) | AREA (SQ FT) | THICKNESS (FOOT) | AGGREGATE SURFACE COURSE, TYPE B (TON) |
|------------|----------------------|------------------|-----------------|---------------------|---|
| LOCATION 1 | 15.0 | 29.0 | 435 | 0.5 | 14.5 |
| LOCATION 2 | 12.0 | 29.0 | 348 | 0.5 | 11.6 |
| LOCATION 3 | 13.0 | 36.8 | 478.4 | 0.5 | 15.9 |
| LOCATION 4 | 12.0 | 36.8 | 441.6 | 0.5 | 14.7 |
| LOCATION 5 | 14.0 | 36.8 | 515.2 | 0.5 | 17.2 |
| | | | | TOTAL = | 73.9 |
| | | | | ROUND TO: | 74.0 |

* - MEASURED IN CAD

| | FURNISHED EXCAVATION (CU YD) | BOX CULVERT END SECTIONS (EACH) | PRECAST CONCRETE BOX CULVERTS, 10' x 6' (FOOT) | PRECAST CONCRETE BOX CULVERTS, 12' x 6' (FOOT) | SEEDING, CLASS 2 (SPECIAL) (ACRE) |
|------------|------------------------------------|--|---|---|--|
| LOCATION 1 | 56.9 | 2.0 | 24.0 | | 0.1 |
| LOCATION 2 | 79.1 | 2.0 | 24.0 | | 0.1 |
| LOCATION 3 | 179.7 | 2.0 | | 36 | 0.1 |
| LOCATION 4 | 205.3 | 2.0 | | 36 | 0.1 |
| LOCATION 5 | 270.4 | 2.0 | | 44 | 0.1 |
| | TOTAL = | 10.0 | 48.0 | 116.0 | 0.5 |
| | ROUND TO: | --- | --- | --- | --- |

| | LENGTH (FOOT) | WIDTH (FOOT) | GEOCOMPOSITE WALL DRAIN (SQ YD) | MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES (SQ YD) |
|--------------|------------------|-----------------|--|--|
| LOCATION 1 | 30.0 | 13.7 | 45.6 | 45.6 |
| LOCATION 2 | 30.0 | 13.7 | 45.6 | 45.6 |
| LOCATION 3 | 42.0 | 16.0 | 74.8 | 74.8 |
| * LOCATION 4 | | | | |
| * LOCATION 5 | | | | |
| | | | TOTAL = | 166.0 |
| | | | | 166.0 |

* - NOT REQUIRED, FILL HEIGHT GREATER THAN 3'

MODEL NAME: MAMES
FILE NAME: 811E13

| | | | | | | | | | | | | |
|----------------------|------------|-----------|---|--------------------------------|--------------------|----------|--------|--------------|---------|--------|-----------------|------------------|
| USER NAME = SUSERS | DESIGNED - | REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | SCHEDULES OF QUANTITIES | | | | F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| | DRAWN - | REVISED - | | ** | * | CRAWFORD | 10 | 4 | | | | |
| PLOT SCALE = SSCALES | CHECKED - | REVISED - | | ** TR 183A | CONTRACT NO. 74A85 | | | | | | | |
| PLOT DATE = SDATES | DATE - | REVISED - | | SCALE: | SHEET | OF | SHEETS | STA. | TO | STA. | ILLINOIS | FED. AID PROJECT |



MODEL: Default
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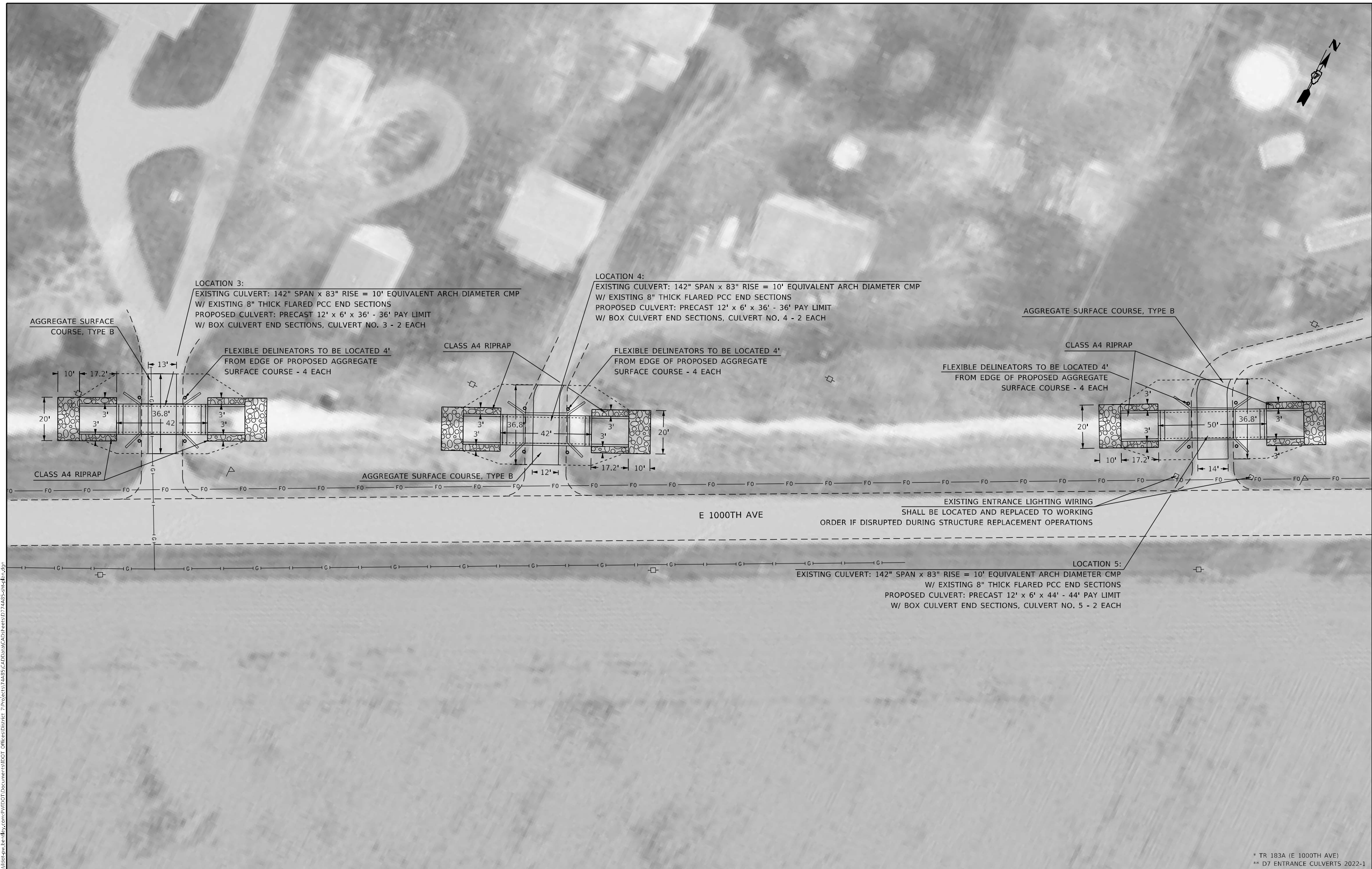
| | | |
|-----------------------------|------------|-----------|
| USER NAME = jessica.hille | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 40,0000 */ in. | CHECKED - | REVISED - |
| PLOT DATE = 2/8/2023 | DATE - | REVISED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

PLAN SHEETS - E. 1000TH AVE

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|------------|---------|----------|--------------------|-----------|
| ** TR 183A | * | CRAWFORD | 10 | 5 |
| | | | CONTRACT NO. 74A85 | |
| | | ILLINOIS | FED. AID PROJECT | |



LOCATION 3:
 EXISTING CULVERT: 142" SPAN x 83" RISE = 10' EQUIVALENT ARCH DIAMETER CMP
 W/ EXISTING 8" THICK FLARED PCC END SECTIONS
 PROPOSED CULVERT: PRECAST 12' x 6' x 36' - 36' PAY LIMIT
 W/ BOX CULVERT END SECTIONS, CULVERT NO. 3 - 2 EACH

LOCATION 4:
 EXISTING CULVERT: 142" SPAN x 83" RISE = 10' EQUIVALENT ARCH DIAMETER CMP
 W/ EXISTING 8" THICK FLARED PCC END SECTIONS
 PROPOSED CULVERT: PRECAST 12' x 6' x 36' - 36' PAY LIMIT
 W/ BOX CULVERT END SECTIONS, CULVERT NO. 4 - 2 EACH

LOCATION 5:
 EXISTING CULVERT: 142" SPAN x 83" RISE = 10' EQUIVALENT ARCH DIAMETER CMP
 W/ EXISTING 8" THICK FLARED PCC END SECTIONS
 PROPOSED CULVERT: PRECAST 12' x 6' x 44' - 44' PAY LIMIT
 W/ BOX CULVERT END SECTIONS, CULVERT NO. 5 - 2 EACH

MODEL: Default
 FILE: \\mdepcaw.bentley.com\FWIDOT\Documents\DOT Offices\Director_T\Projects\74A85\CADD\Drawings\Drawings\74A85-18-1.dwg

* TR 183A (E 1000TH AVE)
 ** D7 ENTRANCE CULVERTS 2022-1

| | | |
|-----------------------------|------------|-----------|
| USER NAME = jessica.hille | DESIGNED - | REVISED - |
| DRAWN - | REVISED - | |
| PLOT SCALE = 40,0000 */ in. | CHECKED - | REVISED - |
| PLOT DATE = 2/8/2023 | DATE - | REVISED - |

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

PLAN SHEETS - E. 1000TH AVE

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|------------|---------|----------|--------------------|-----------|
| ** | * | CRAWFORD | 10 | 6 |
| ** TR 183A | | | CONTRACT NO. 74A85 | |

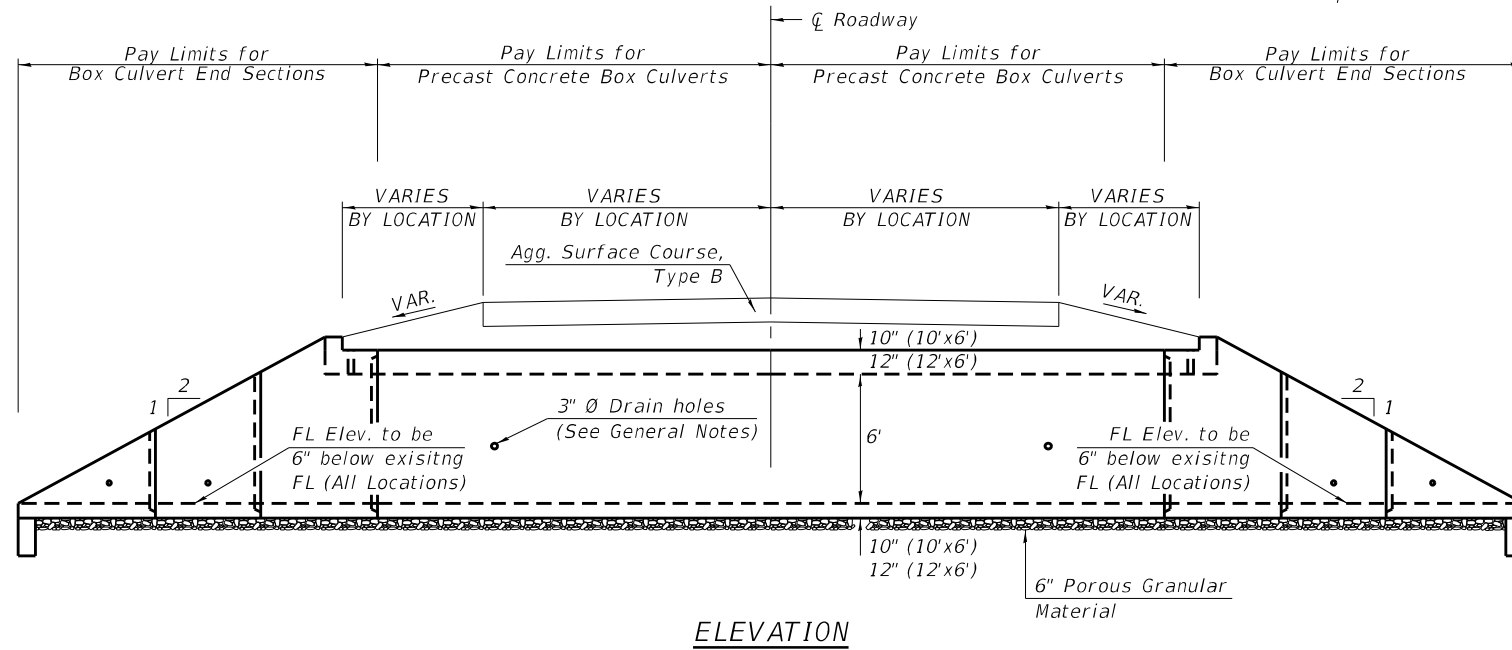
Benchmark:
Existing Structure:

INDEX OF SHEETS

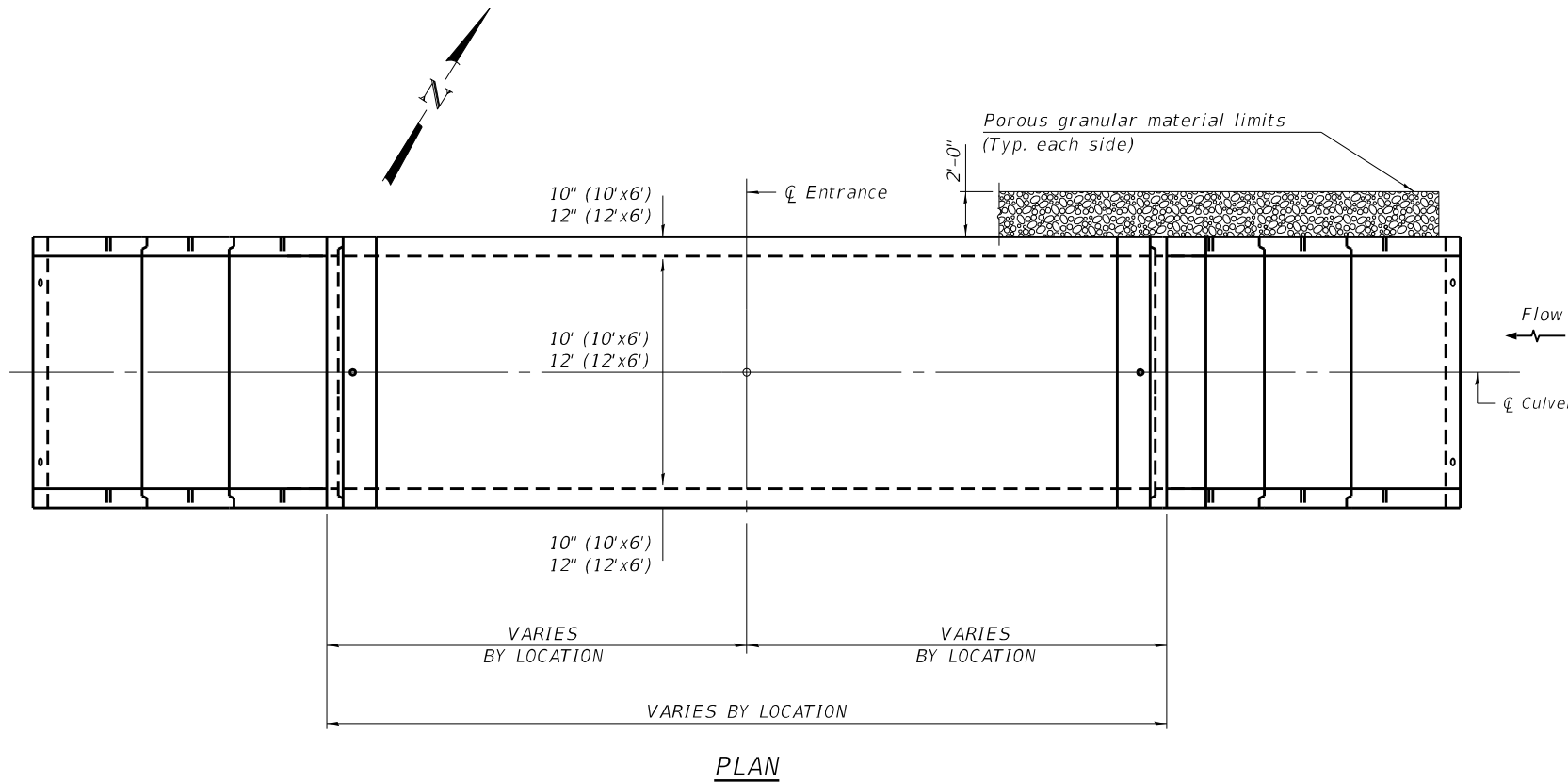
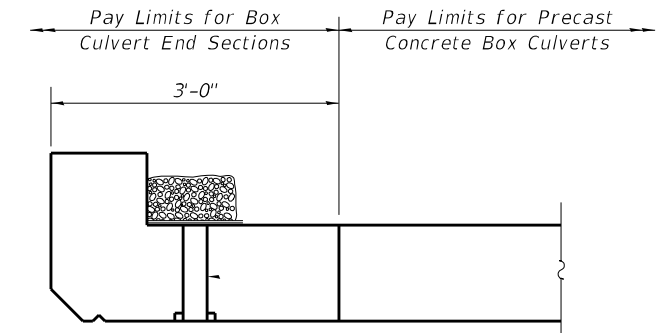
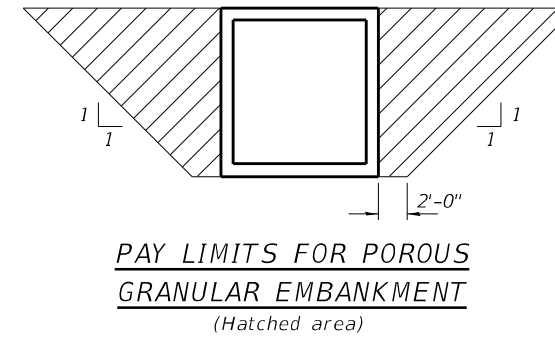
- 1. General Plan and Elevation
- 2.-3. Precast Concrete Box Culvert Apron End Section Details

GENERAL NOTES

The design fill height for the respective structures can be found on sheet 10. The precast box culvert sections shall conform to the requirements of ASTM 1577.
 Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3 ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch, and shall conform to the requirements of Article 503.11 of the Standard Specification.
 Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.
 Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert to the bottom of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of porous granular material required under the precast concrete box culvert, according to Section 540.06 of the standard specifications, shall also apply to the end sections. Cost of this porous granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.



ELEVATION



PLAN

DESIGN SPECIFICATIONS
2020 AASHTO LRFD Bridge Design Specifications
Customary U.S. Units, 9th Edition

LOADING HL-93

DESIGN STRESSES

PRECAST UNITS

$f'_c = 5,000 \text{ psi}$
 $f_y = 65,000 \text{ psi}$ (Welded Wire Reinforcement)

TOTAL BILL OF MATERIAL (Total 5 Culverts)

| ITEM | UNIT | TOTAL |
|---|-------|-------|
| Pipe Culvert Removal (Special) | Foot | 98.0 |
| Box Culvert End Sections, Culvert No. 1 | Each | 2.0 |
| Box Culvert End Sections, Culvert No. 2 | Each | 2.0 |
| Box Culvert End Sections, Culvert No. 3 | Each | 2.0 |
| Box Culvert End Sections, Culvert No. 4 | Each | 2.0 |
| Box Culvert End Sections, Culvert No. 5 | Each | 2.0 |
| Precast Concrete Box Culverts, 10' x 6' | Foot | 48.0 |
| Precast Concrete Box Culverts, 12' x 6' | Foot | 116.0 |
| Porous Granular Embankment | Ton | 808.0 |
| Geocomposite Wall Drain | Sq Yd | 166.0 |
| Membrane Waterproofing System For Buried Structures | Sq Yd | 166.0 |

MODEL: Default
FILE: \\nafe\p\subct-pw-bentley.com\PIV\DOT\Documents\DOT Office\Dir\dr_7\Project\74A85\CADD\DATA\CAD\Sheet\DOT74A85-11-1.dgn

| | | |
|------------------------------|------------|-----------|
| USER NAME = Mona.Steffen | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 3/26/2024 | DATE - | REVISED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

CULVERT DETAILS

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|------------|---------|----------|--------------------|-----------|
| ** | * | CRAWFORD | 10 | 7 |
| ** TR 183A | | | CONTRACT NO. 74A85 | |

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. This work will be measured for payment as each, with each end of each culvert being one each. End sections will be paid for at the contract unit price per each for Box Culvert End Sections of the culvert number specified.

Typical box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements of ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

Number of segments shown in Elevation is for example only. Length and number of precast box sections required to construct Box Culvert End Sections shall be determined by the Contractor.

See roadway plans for embankment slope (V:H).

1" \emptyset anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable.

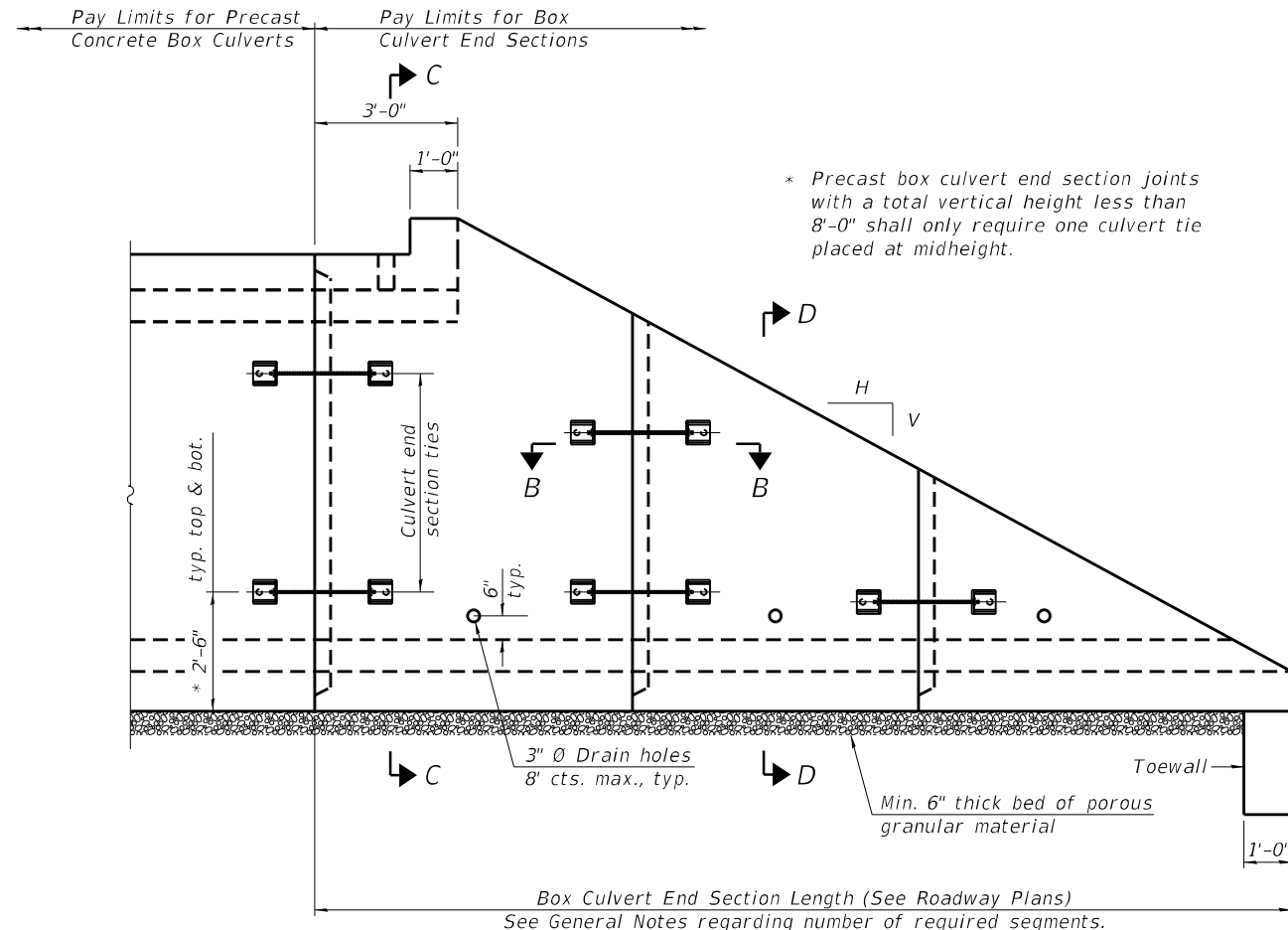
2 1/4" x 2 1/4" x 5/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the contract unit price for Box Culvert End Sections of the culvert number specified.

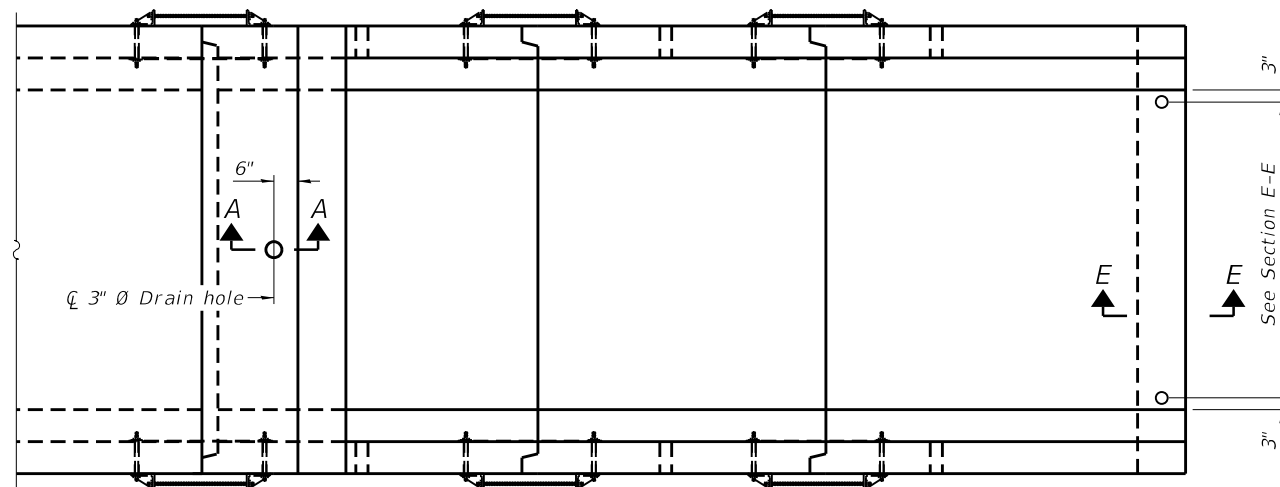
Drain holes shall conform to the requirements of Article 503.11 of the Standard Specifications unless noted otherwise.

Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01. The minimum weight of the fabric shall be 6 oz. / sq. yd..

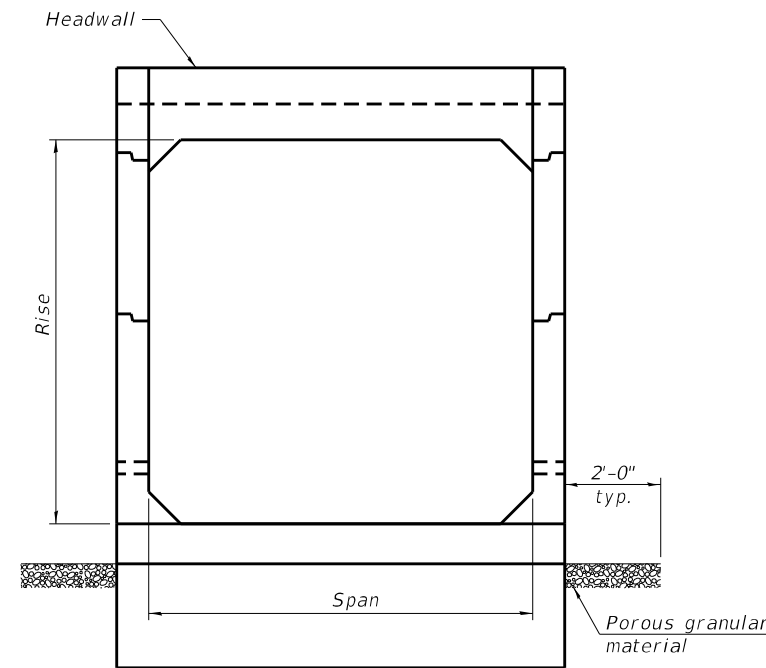
For end sections with traversable pipe grate systems, see grate detail sheet for required modifications.



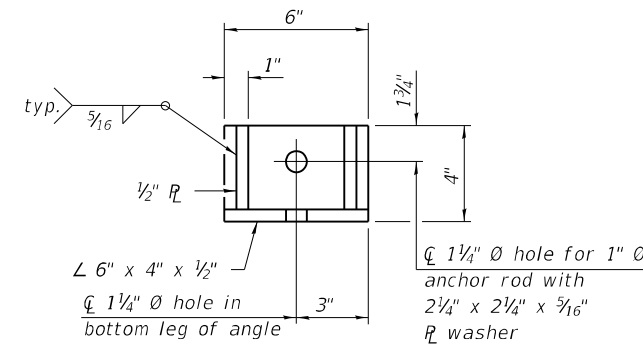
ELEVATION



PLAN



END VIEW



RESTRAINT ANGLE DETAIL

12" x 12" x 6" block of CA5, CA7, or CA11 coarse aggregate placed over drain opening. Block of aggregate shall be completely wrapped in nonwoven geotextile fabric.

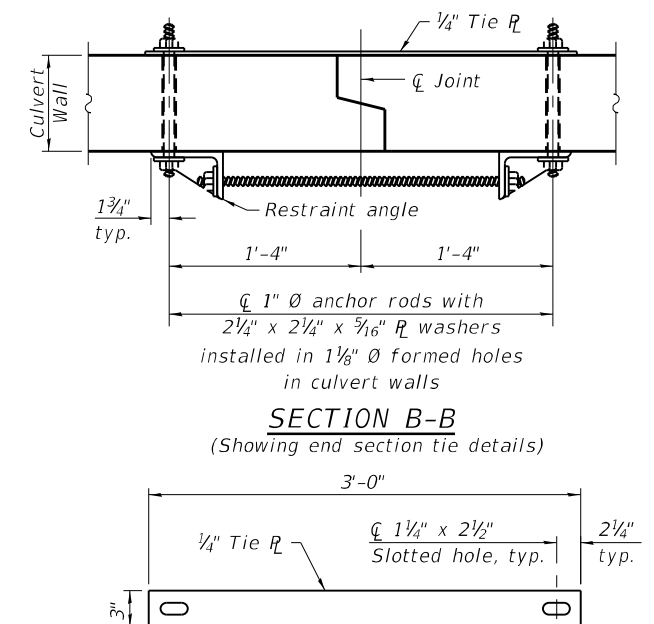
Provide a double layer of 12" x 12" nonwoven geotextile fabric centered over the drain hole. Fabric shall be sealed to the concrete with mastic.

3" Ø PVC drain cast with the concrete (Adjust location to clear reinforcement).

1/2" Square foam blockout around PVC drain (to be removed with formwork)

SECTION A-A

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.) (Sheet 1 of 2)



SECTION B-B

(Showing end section tie details)

TIE PLATE DETAIL

SCB-TES

2-17-2017

| | | |
|------------------------------|------------|-----------|
| USER NAME = Jessica.Hille | DESIGNED - | REVISED - |
| DRAWN - | REVISED - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 2/8/2023 | DATE - | REVISED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

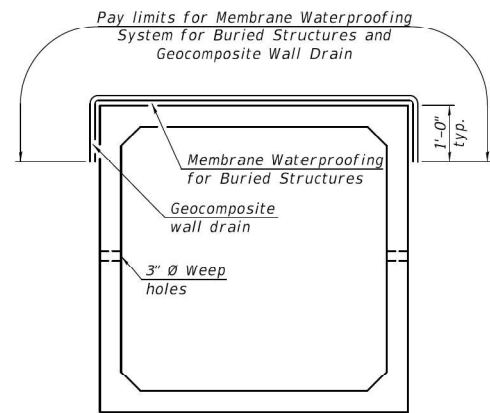
**SINGLE CELL PRECAST BOX CULVERT TAPERED END SECTIONS
STRUCTURE NO.**

SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|------------|---------|--------------------|--------------|-----------|
| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| ** | * | CRAWFORD | 10 | 8 |
| ** TR 183A | | CONTRACT NO. 74A85 | | |

MODEL: Default
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 PLOT DATE: 2/8/2023

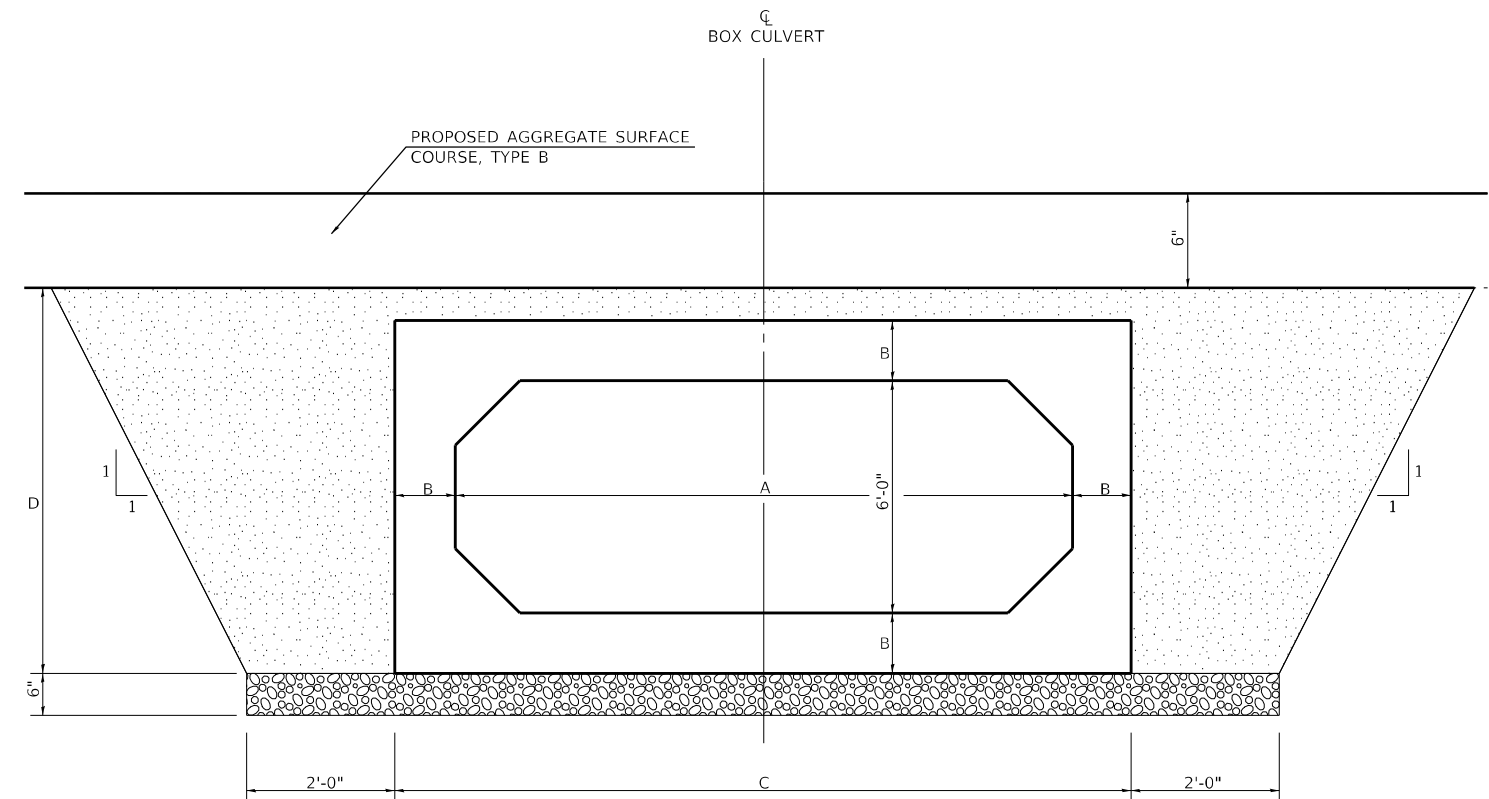
MEMBRANE WATERPROOFING SYSTEM DETAILS



PRECAST CONCRETE BOX CULVERT
 Fill Height ≤ 3 ft.
 For fill heights > 3 ft., omit Membrane Waterproofing System for Buried Structures and Geocomposite Wall Drain.

Note:
 Geocomposite Wall Drain shall be according to Section 591 of the Standard Specifications, except that concrete nails shall not be used in areas where it overlaps Membrane Waterproofing System for Buried Structures.

POROUS GRANULAR EMBANKMENT DETAILS



POROUS GRANULAR EMBANKMENT SHALL EXTEND 2 FT. BEYOND THE LIMITS OF THE EXISTING AGGREGATE ENTRANCE.

THE WORK SHOWN IN THIS DETAIL SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF ARTICLE 207 AND ARTICLE 540 OF THE STANDARD SPECIFICATIONS.

THIS WORK SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD OF POROUS GRANULAR EMBANKMENT.

THE AREA TO BE EXCAVATED FOR THE PROPOSED BOX CULVERT SHALL NOT BE MEASURED FOR PAYMENT. THE COST OF THE EXCAVATION SHALL BE INCLUDED IN THE COST OF PRECAST CONCRETE BOX CULVERTS AND PRECAST CONCRETE BOX CULVERT END SECTIONS.

| DIMENSION: | A | B | C | D |
|-------------|-----|-----|--------|--------|
| LOCATION 1: | 10' | 10" | 11'-8" | 9'-4" |
| LOCATION 2: | 10' | 10" | 11'-8" | 9'-4" |
| LOCATION 3: | 12' | 12" | 14' | 10'-6" |
| LOCATION 4: | 12' | 12" | 14' | 10'-6" |
| LOCATION 5: | 12' | 12" | 14' | 10'-6" |

| LEGEND | |
|--------|---|
| | POROUS GRANULAR EMBANKMENT |
| | BOX CULVERT BEDDING (INCLUDED IN THE COST OF THE BOX CULVERT AND END SECTIONS) |

BILL OF MATERIAL (5 CULVERTS)

| ITEM | UNIT | TOTAL |
|----------------------------|------|-------|
| Porous Granular Embankment | Ton | 808.0 |
| (Total All 5 Locations) | | |

MODEL: Default
 FILE NAME: p:\ultra-cw-bentley.com\PIV\DOT\Documents\DOT Office\Dir\drct_7\Project\74A85\CADD\DATA\CAD\Sheet\ID74A85-11-1.dgn

| | | |
|-------------------------------|------------|-----------|
| USER NAME = Mona.Steffen | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000 ' / in. | CHECKED - | REVISED - |
| PLOT DATE = 3/26/2024 | DATE - | REVISED - |

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

MEMBRANE WATERPROOFING SYSTEM
 POROUS GRANULAR EMBANKMENT DETAILS

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|------------|---------|----------|--------------------|-----------|
| ** TR 183A | * | CRAWFORD | 10 | 10 |
| | | | CONTRACT NO. 74A85 | |