

Standard Road Plans  
See Sheet C.XX



Iowa Department of Transportation  
**HIGHWAY DIVISION**



1-800-292-8989  
www.iowaonecall.com



**IOWA COUNTY**  
U.S. HIGHWAY 6 - LADORA CREEK  
RCB - REPLACEMENT

INDEX OF SHEETS

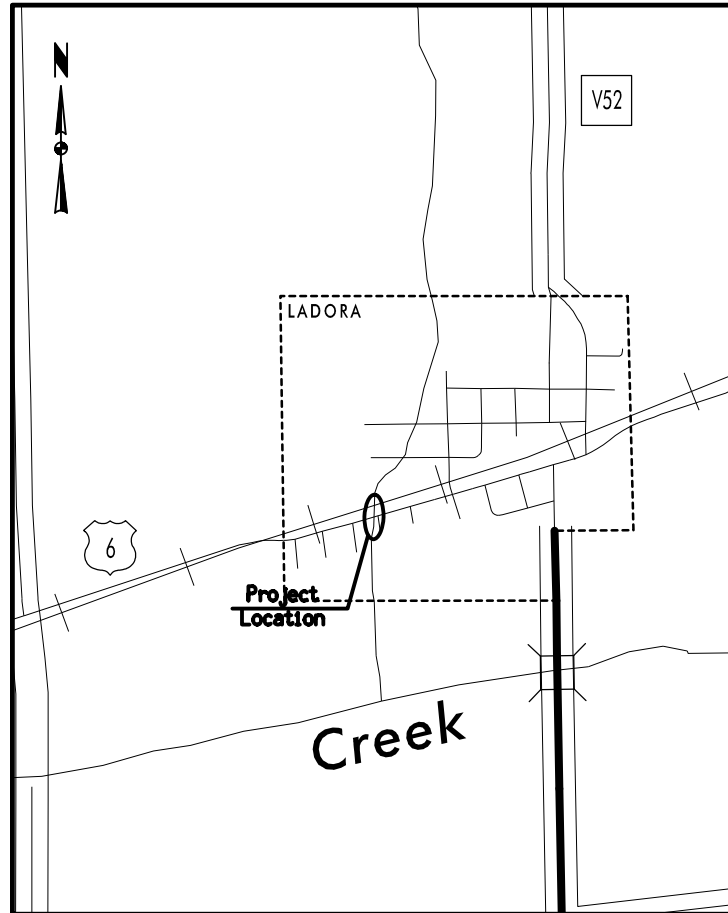
105-3  
10-18-05

| No.       | Description                                 |
|-----------|---|
| A.01      | Title Sheet                                 |
| B.01-B.02 | Typical Cross Section and Details           |
| C.01-C.0X | Estimate Quantities and General Information |
| D.01      | Plan and Profile Sheets - U.S. HWY. 6       |
| D.02      | Plan and Profile Sheets - RCB Culvert       |
| V.01      | Culvert Situation Plan                      |
| W.01-W.02 | U.S. HWY. 6 Cross Sections                  |
| X.01-X.02 | RCB Culvert Cross Sections                  |

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2012, plus General Supplemental Specifications; and applicable Supplemental Specifications, Developmental Specifications, and Special Provisions, shall apply to construction on this project.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



\*NOT TO SCALE

MILEAGE SUMMARY

105-1  
09-27-94

| Div.   | Location                         | Lin. Ft. | Miles |
|--------|----------------------------------|----------|-------|
|        | Sta. 347+28.05 to Sta. 349+27.16 | 199.11   | 0.04  |
| Total: |                                  | 119.11   | 0.04  |

**PRELIMINARY**

IOWA CO. STPN-006-6(50)-2J-48 RCB - REPLACEMENT LETTING DATE XX-XX-2014  
 Cedar County #60316923 \$SDCINS \$SDATF\$ \$SDRIF\$



**STANDARD SYMBOLS**

|  |                                   |  |  |  |                                  |
|--|-----------------------------------|--|--|--|----------------------------------|
|  | Interstate Highway Symbol         |  | Septic Tank                                      |  | Guardrail (Beam or Cable)        |
|  | U.S. Highway Symbol               |  | Cistern  |  | GP Guard Post (one or two)       |
|  | Iowa Highway Symbol               |  | L.P. Gas Tank (No Footing)                       |  | Guard Post (over two)            |
|  | County Road Highway Symbol        |  | Underground Storage Tank                         |  | FP Filler Pipe                   |
|  | Evergreen Tree                    |  | Latrine  |  | GV Gas Valve                     |
|  | Deciduous Tree                    |  | Luminaire  |  | WV Water Valve                   |
|  | Fruit Tree                        |  | Traffic Signal                                   |  | SL Speed Limit Sign              |
|  | Shrub (Bushes)                    |  | Traffic Signal with Luminaire                    |  | MM Mile Marker Post              |
|  | Timber                            |  | Telephone Pedestal                               |  | SIGN Sign                        |
|  | Hedge                             |  | Television Pedestal                              |  | WHU Water Hook Up                |
|  | Stump                             |  | Telephone Pole                                   |  | RT Radio Tower                   |
|  | Swamp                             |  | Telephone Pole (Second Company)                  |  | TA Tower Anchor                  |
|  | Rock Outcrop                      |  | Telephone Pole (Third Company)                   |  | EB Electric Box                  |
|  | Broken Concrete                   |  | Telephone Pole (Fourth Company)                  |  | TCB Traffic Signal Control Box   |
|  | Revetment (Rip Rap)               |  | Telephone Pole (Fifth Company)                   |  | RRB Rail Road Signal Control Box |
|  | Cemetery                          |  | Power Pole                                       |  | TSB Telephone Switch Box         |
|  | Grave                             |  | Power Pole (Second Company)                      |  |                                  |
|  | Cave                              |  | Power Pole (Third Company)                       |  |                                  |
|  | Sink Hole                         |  | Power Pole (Fourth Company)                      |  |                                  |
|  | Board Fence                       |  | Power Pole (Fifth Company)                       |  |                                  |
|  | Chain Link or Security Fence      |  | Electrical Highline Tower (Metal or Concrete)    |  |                                  |
|  | Wire Fence                        |  | Telephone Riser Pole                             |  |                                  |
|  | Terrace                           |  | Power Riser Pole                                 |  |                                  |
|  | Earth Dam or Dike (Existing)      |  | Telegraph Pole                                   |  |                                  |
|  | Earth Dam or Dike (Proposed)      |  | Satellite TV Dish                                |  |                                  |
|  | Tile Outlet                       |  | Existing Water Line                              |  |                                  |
|  | Edge of Water                     |  | Existing Water Line (Second Company)             |  |                                  |
|  | Existing Drainage                 |  | Existing Sanitary Sewer Line                     |  |                                  |
|  | Proposed Drainage                 |  | Existing Telephone Line                          |  |                                  |
|  | Right of Way Rail or Lot Corner   |  | Existing Telephone Line (Second Company)         |  |                                  |
|  | Concrete Monument                 |  | Existing Fiber Optics Telephone Line             |  |                                  |
|  | Well                              |  | Existing Storm Sewer Line                        |  |                                  |
|  | Windmill                          |  | Existing Gas Line                                |  |                                  |
|  | Beehive Intake                    |  | Existing High Pressure Gas Line                  |  |                                  |
|  | Existing Intake                   |  | Existing Gas Line (Second Company)               |  |                                  |
|  | Proposed Intake                   |  | Existing High Pressure Gas Line (Second Company) |  |                                  |
|  | Existing Utility Access (Manhole) |  | Existing Power Line                              |  |                                  |
|  | Proposed Utility Access (Manhole) |  | Existing Power Line (Second Company)             |  |                                  |
|  | Fire Hydrant                      |  | Cable Television Line                            |  |                                  |
|  | Water Hydrant (Rural)             |  |  |  |                                  |

|  |                                      |
|--|--------------------------------------|
|  | Shading - Proposed Paved Surface     |
|  | Shading - Proposed Granular Surface  |
|  | Shading - Other, with Identification |
|  | Shading - Clearing & Grubbing Area   |
|  | Removals                             |

**RIGHT OF WAY LEGEND**

|  |                                    |
|--|------------------------------------|
|  | Proposed Right of Way              |
|  | Existing Right of Way              |
|  | Existing and Proposed Right of Way |
|  | Easement and Existing Right of Way |
|  | Borrow                             |
|  | Easement (Temporary)               |
|  | Easement                           |
|  | Excess                             |
|  | Property Line                      |
|  | Access Control                     |

**CONVENTIONAL LINEWORK**

|  |                        |
|--|------------------------|
|  | Survey Line            |
|  | Section Corner         |
|  | Proposed Profile Grade |
|  | Railroad               |
|  | Field Tile             |
|  | Culverts               |
|  | Stream                 |



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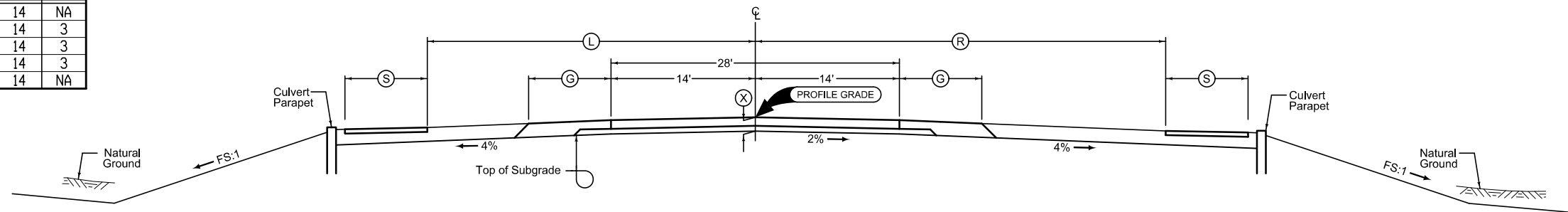


**Legend And Symbol Information Sheet**

(Symbols are Typical Only, actual size may vary)

| LOCATION            |                    |           | DIMENSIONS |           |           |           |             |    |
|---------------------|--------------------|-----------|------------|-----------|-----------|-----------|-------------|----|
| ROAD IDENTIFICATION | STATION TO STATION |           | Ⓛ<br>Feet  | Ⓡ<br>Feet | ⓐ<br>Feet | Ⓢ<br>Feet | ⓧ<br>Inches | FS |
| U.S. HWY. 6         | 347+27.92          | 348+03.57 | 26         | 28        | 4         | 5         | 14          | NA |
| U.S. HWY. 6         | 348+03.57          | 348+32.14 | Varies     | 28        | 4         | 5         | 14          | 3  |
| U.S. HWY. 6         | 348+32.14          | 348+72.14 | 22         | 28        | 4         | 5         | 14          | 3  |
| U.S. HWY. 6         | 348+72.14          | 349+00.70 | Varies     | 28        | 4         | 5         | 14          | 3  |
| U.S. HWY. 6         | 349+00.70          | 350+49.71 | 26         | 28        | 4         | 5         | 14          | NA |

TYPICAL  
X-SECTION



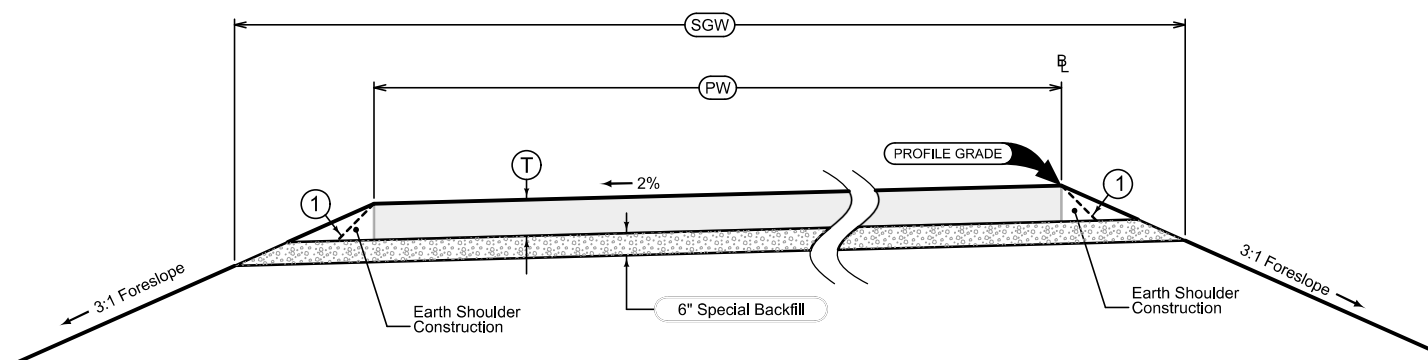
TYPICAL CROSS SECTION

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

| LOCATION            |                    | DIMENSIONS |             |             |            |             |             | 6" Special Backfill<br>Tons/Station | Earth Shoulder Construction<br>Station |
|---------------------|--------------------|------------|-------------|-------------|------------|-------------|-------------|-------------------------------------|--|
| ROAD IDENTIFICATION | STATION TO STATION | HMA        |             |             | PCC        |             |             |                                     |  |
|                     |                    | PW<br>Feet | T<br>Inches | SGW<br>Feet | PW<br>Feet | T<br>Inches | SGW<br>Feet |                                     |  |
| STAGE 1             |                    |            |             |             |            |             |             |                                     |  |
| U.S. HWY. 6         |                    |            |             |             |            |             |             |                                     |  |
| STAGE 2             |                    |            |             |             |            |             |             |                                     |  |
| U.S. HWY. 6         |                    |            |             |             |            |             |             |                                     |  |

TEMP PVMT  
MODIFIED

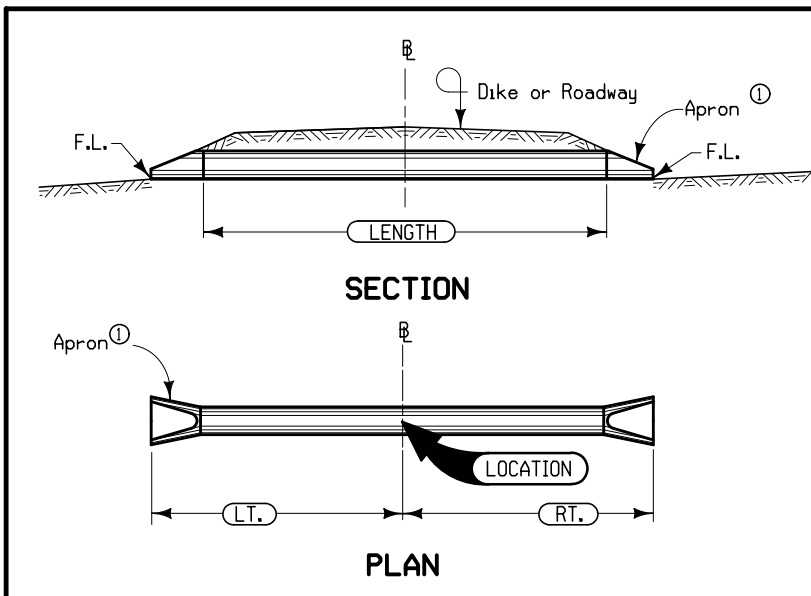


DETOUR PAVING

Quantity calculations based on vertical pavement edges.

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

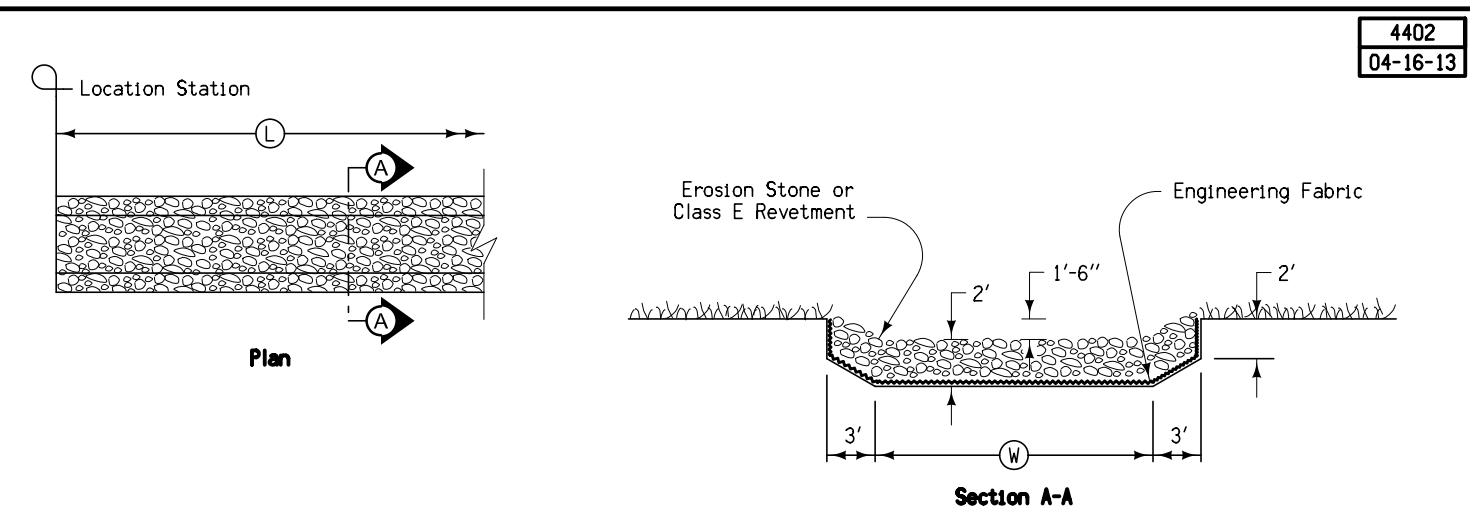
① Possible HMA 1:1 slope



1101  
04-30-02

Notes:  
 Ⓛ shall be Ⓛ of roadway, dike, survey, or other; as detailed on plans.  
 Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the Ⓛ (example skew Rt. ahead 30°).  
 Refer to tabular listing and other plans for additional information.  
 ① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

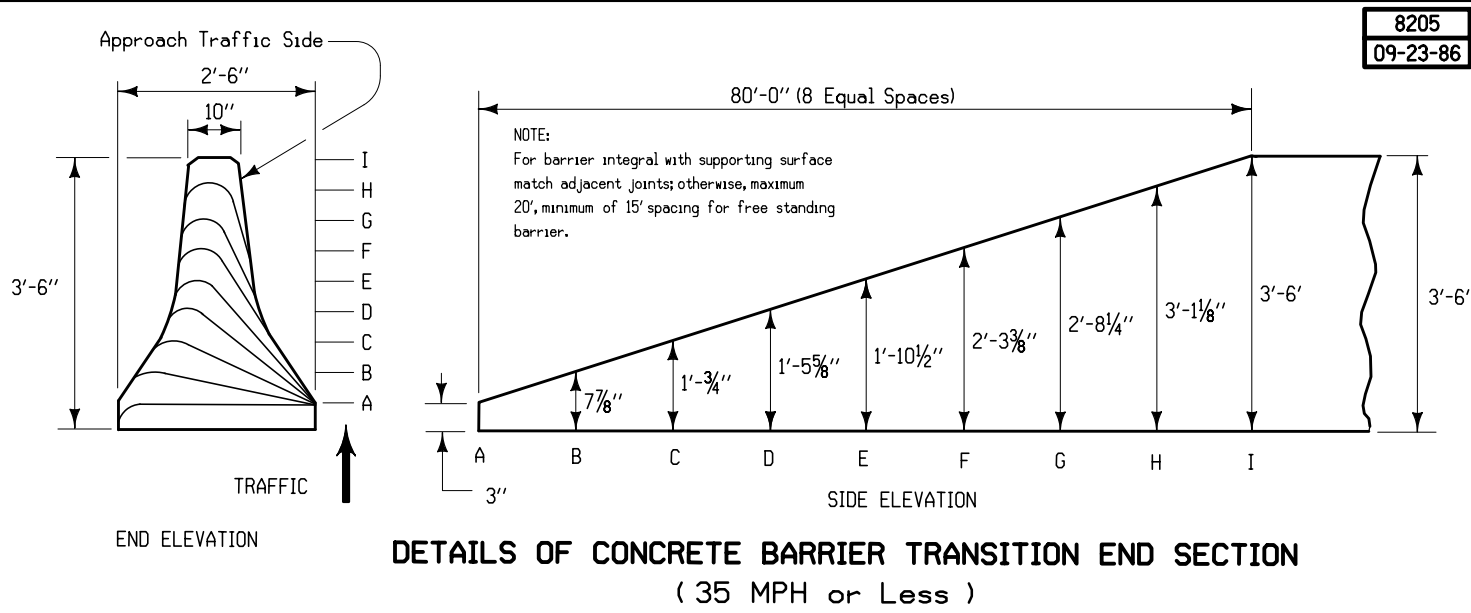
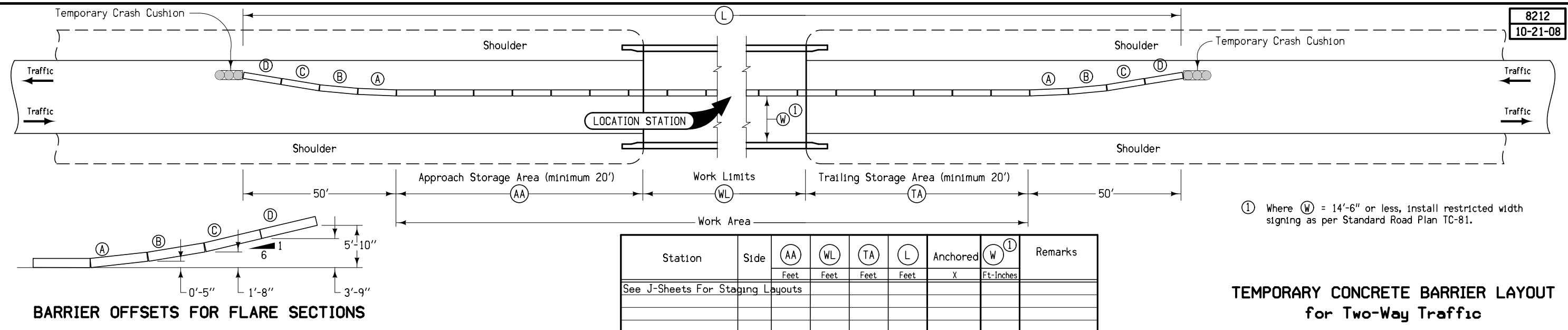
PIPE CULVERT

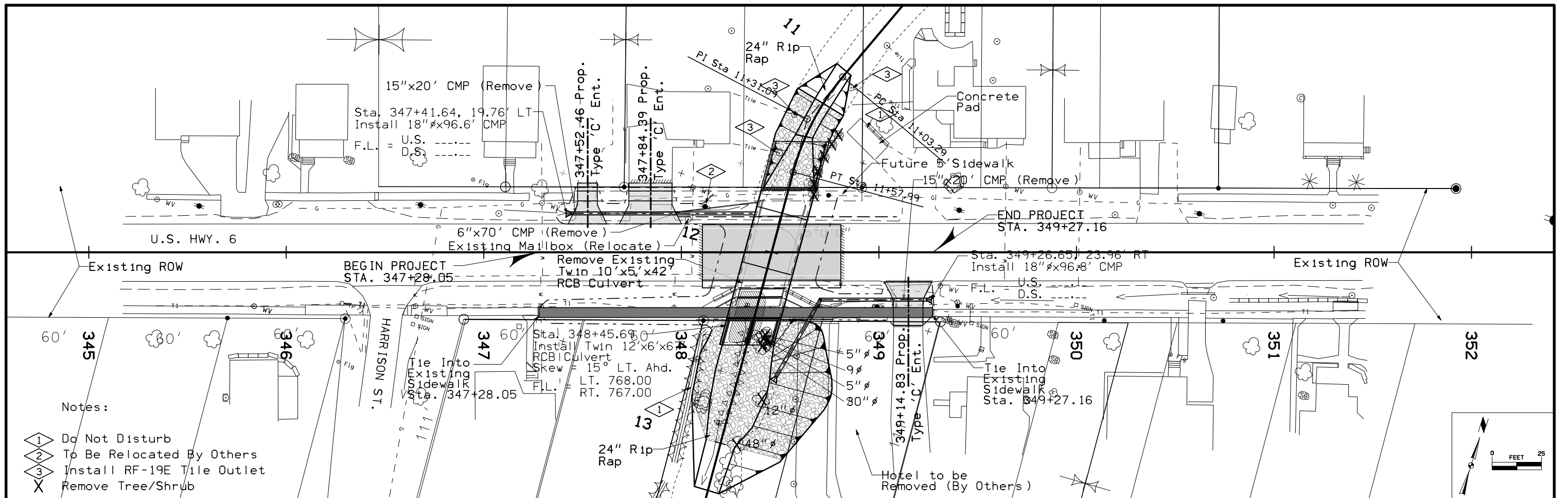


4402  
04-16-13

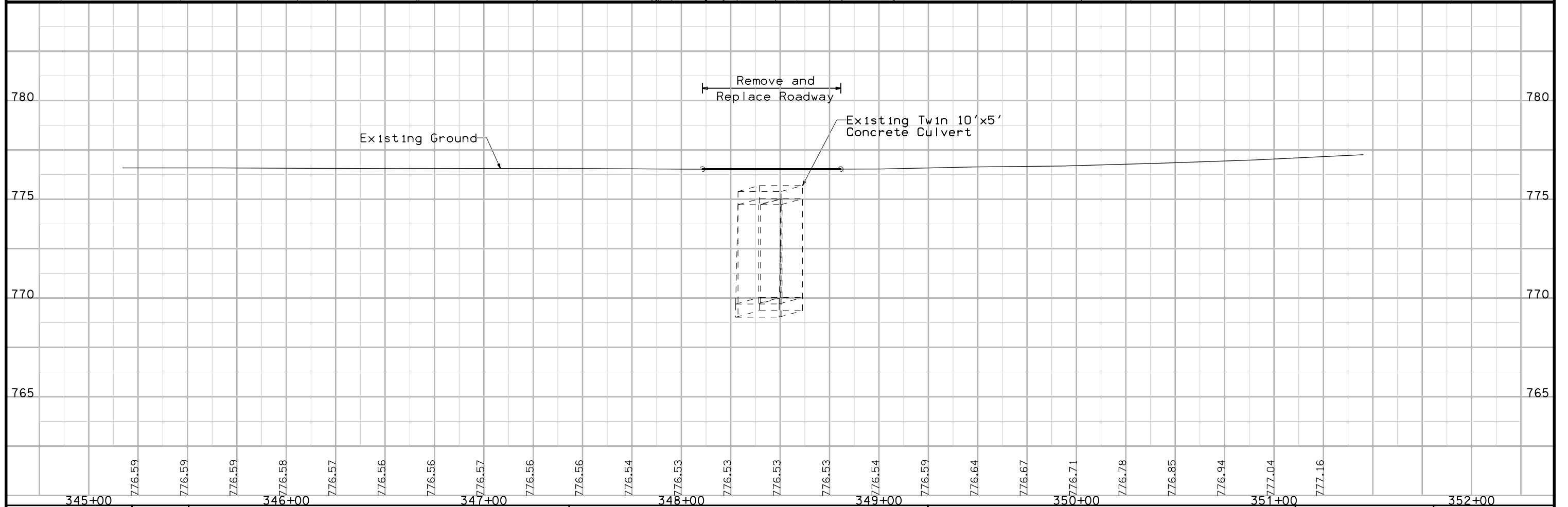
Refer to Tabulation 100-23 for additional information.

ROCK DITCH

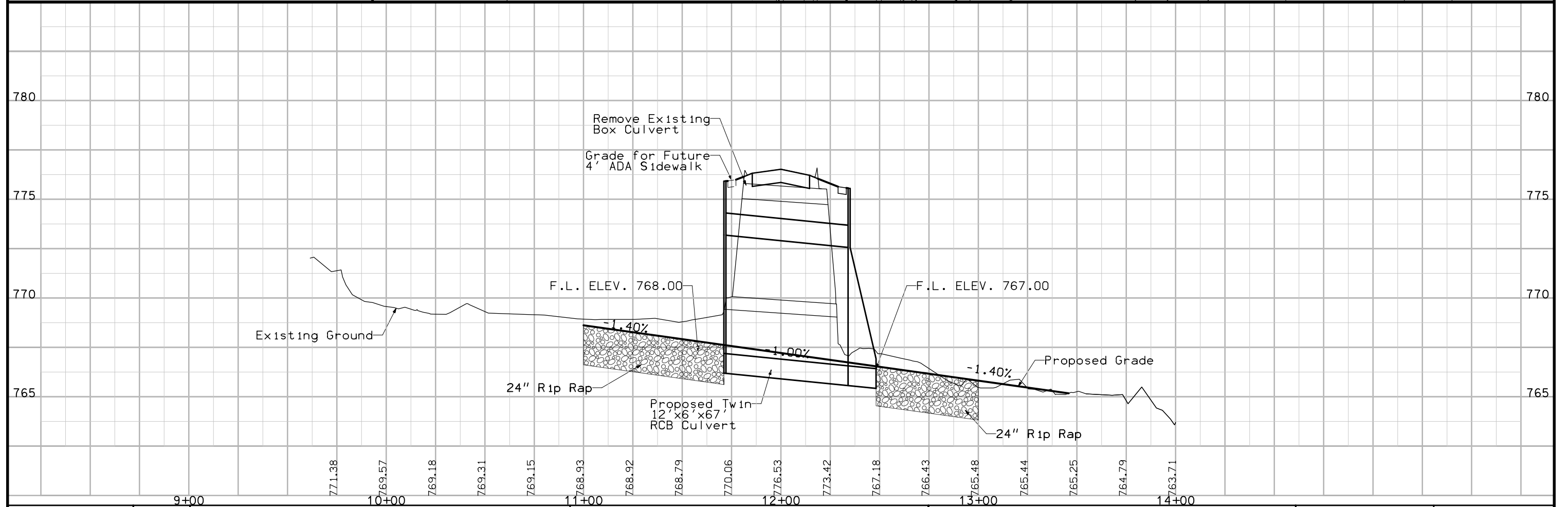
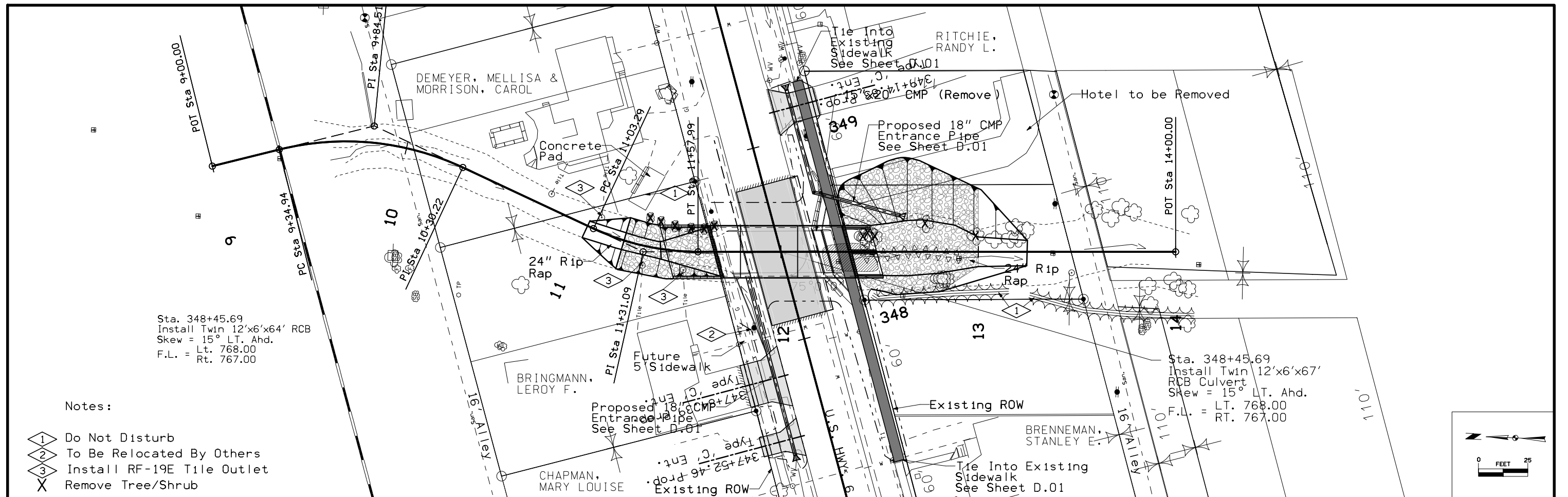


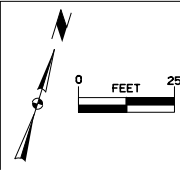
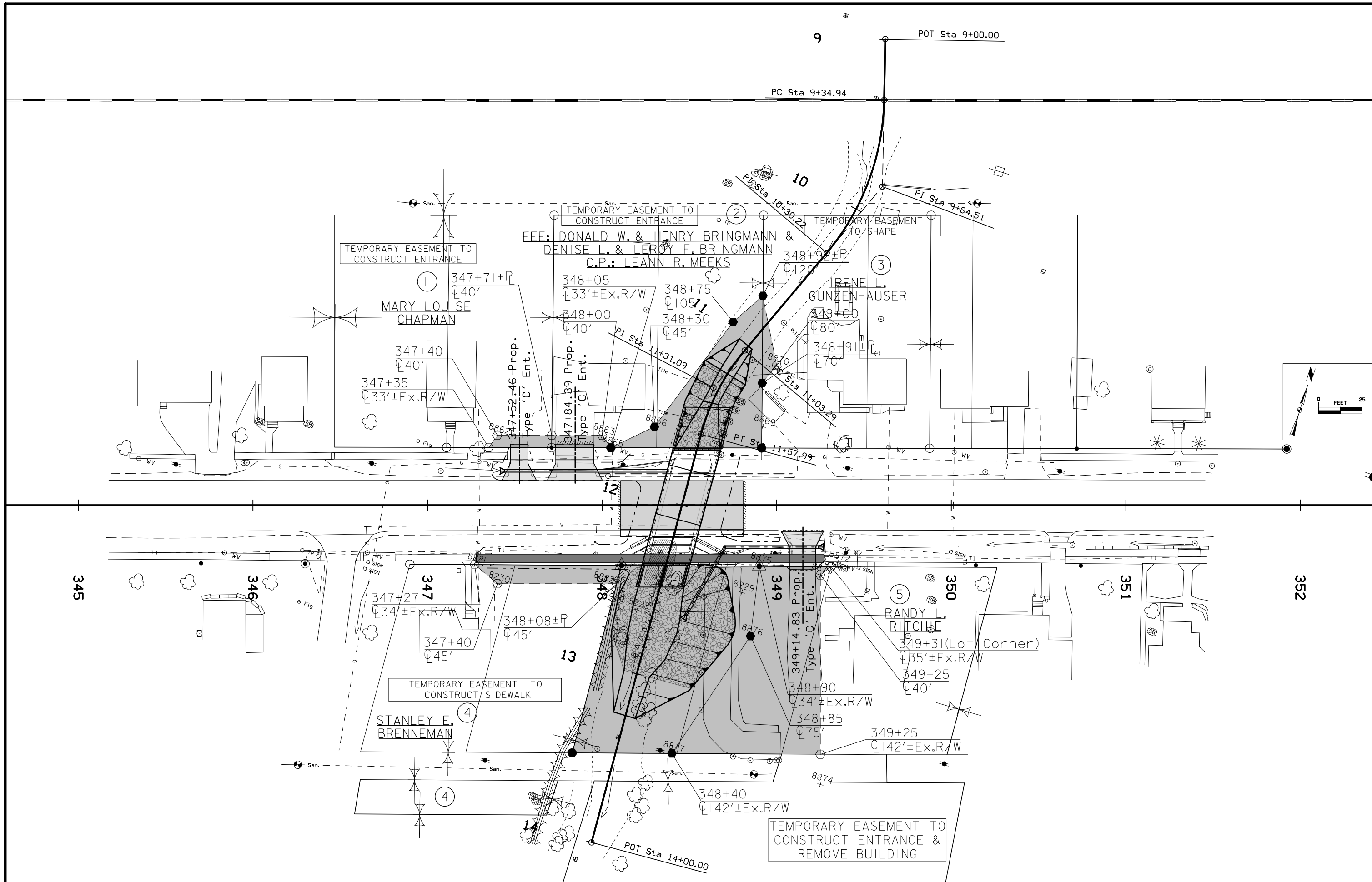


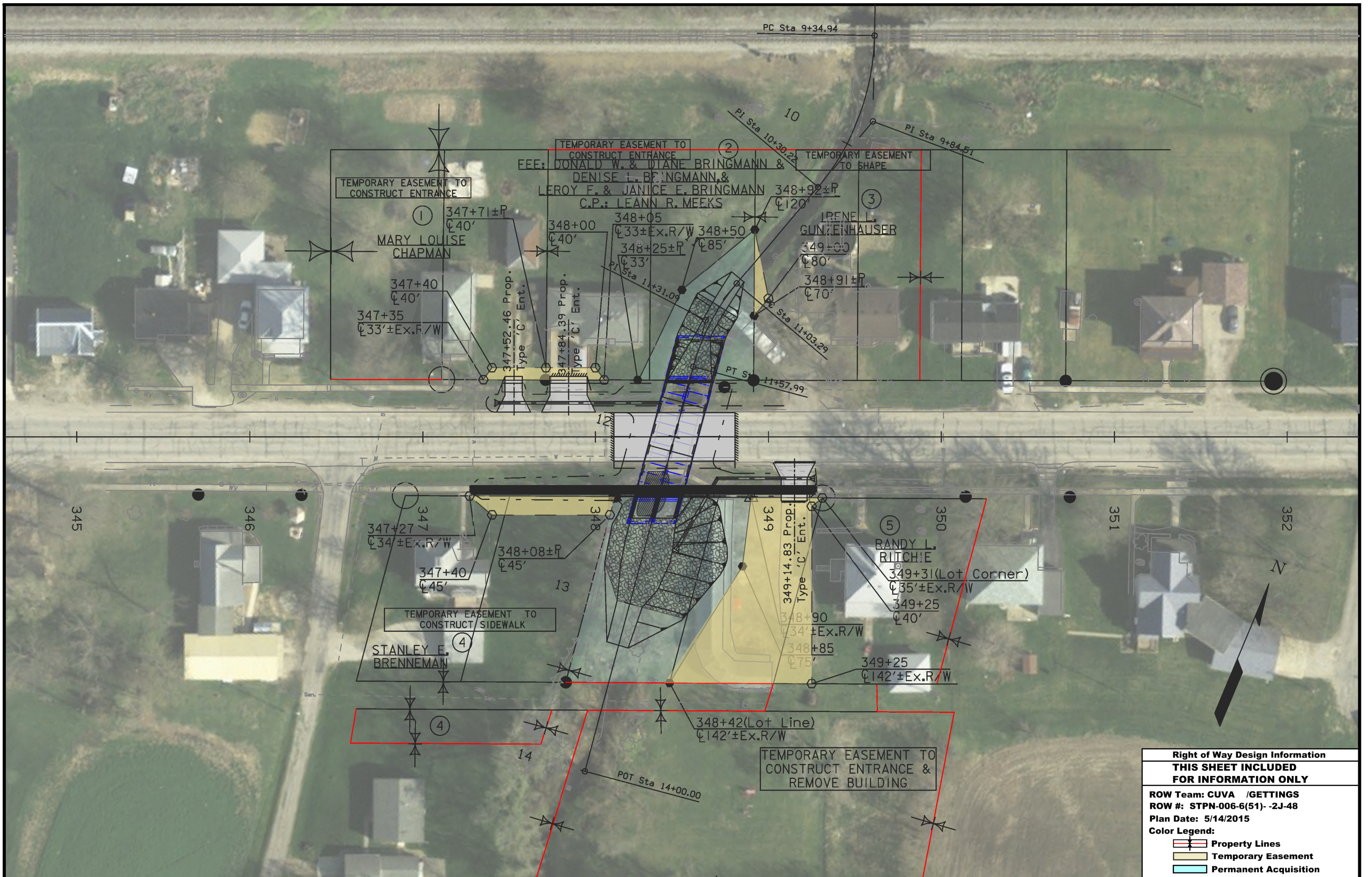
- Notes:
- 1 Do Not Disturb
  - 2 To Be Relocated By Others
  - 3 Install RF-19E Tile Outlet
  - X Remove Tree/Shrub



|         |          |             |              |             |                |                             |              |             |         |
|---------|----------|-------------|--------------|-------------|----------------|-----------------------------|--------------|-------------|---------|
| ENGLISH | IOWA DOT | DESIGN TEAM | <b>AECOM</b> | IOWA COUNTY | PROJECT NUMBER | <b>STPN-006-6(50)-2J-48</b> | SHEET NUMBER | <b>D.01</b> | REVISED |
|---------|----------|-------------|--------------|-------------|----------------|-----------------------------|--------------|-------------|---------|





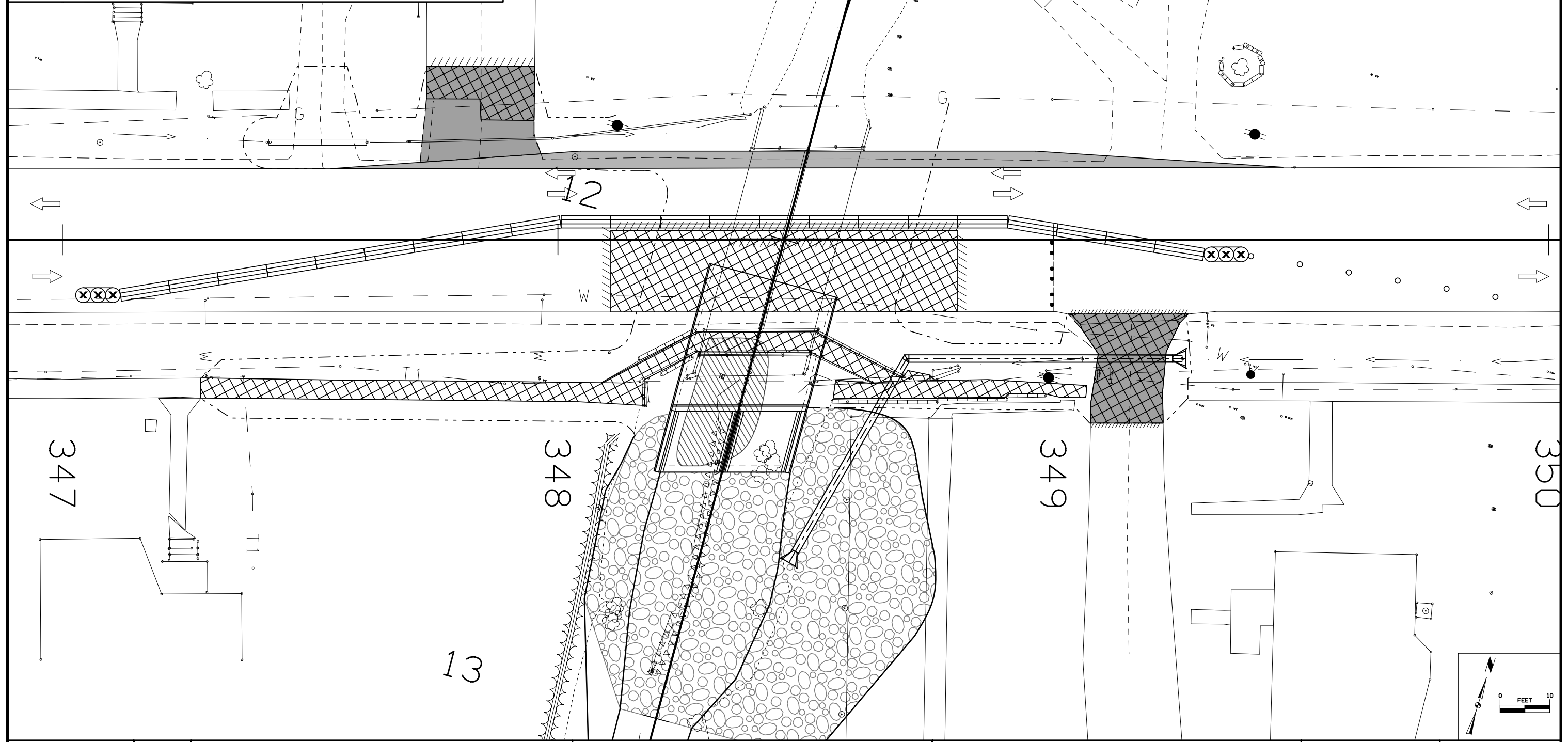


|   |                       |
|---|-----------------------|
| <b>Right of Way Design Information</b>          |                       |
| <b>THIS SHEET INCLUDED FOR INFORMATION ONLY</b> |                       |
| ROW Team: CUVA /GETTINGS                        |                       |
| ROW #: STPN-006-6(51)-2J-48                     |                       |
| Plan Date: 5/14/2015                            |                       |
| <b>Color Legend:</b>                            |                       |
|   | Property Lines        |
|   | Temporary Easement    |
|   | Permanent Acquisition |



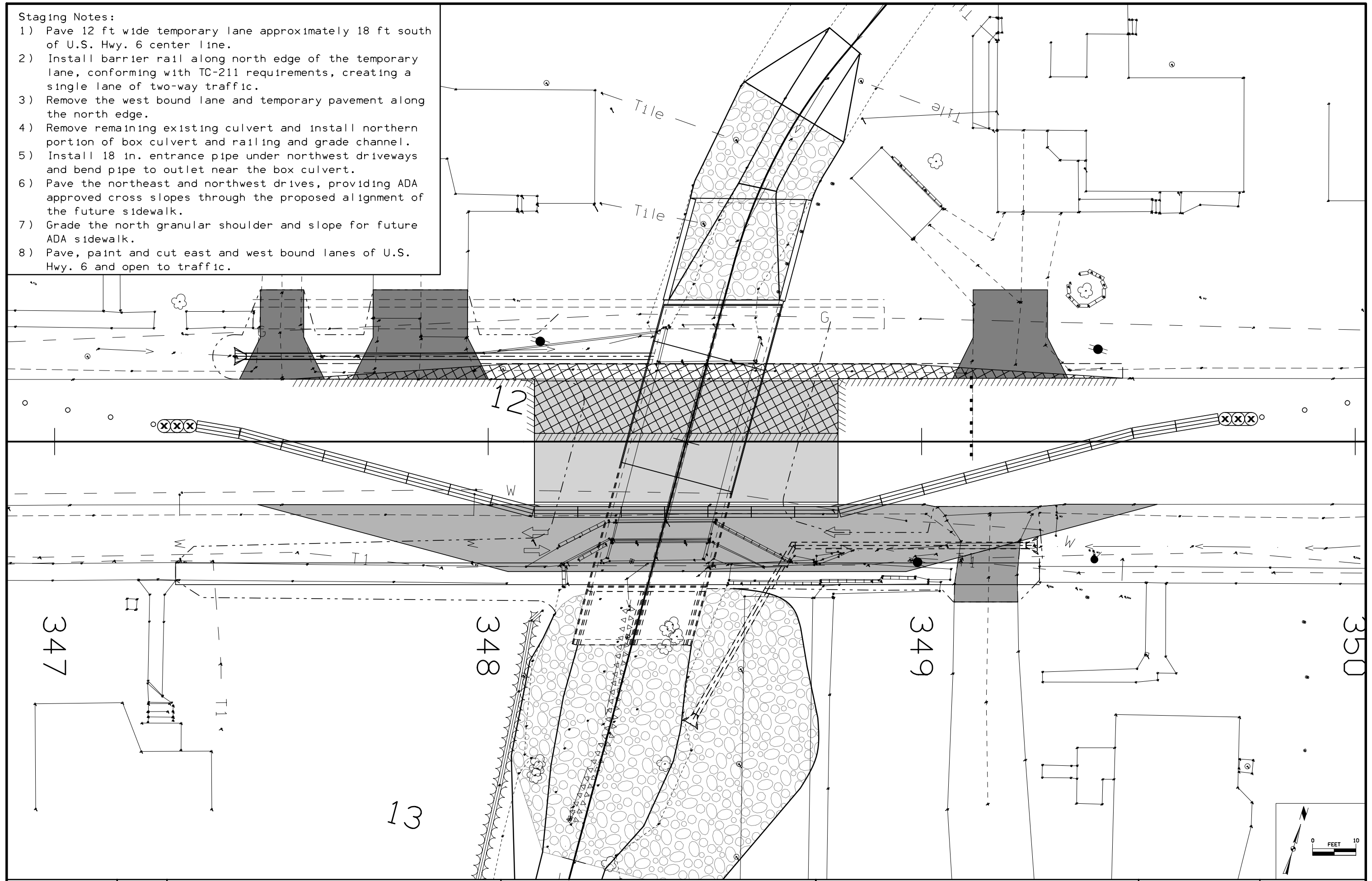
Staging Notes:

- 1) Remove portion of driveway on northwest property.
- 2) Pave north shoulder to provide for temporary widening of westbound lane.
- 3) Install barrier rail 2.5 ft. north of center line, conforming with TC-211 requirements, creating a single lane of two-way traffic.
- 4) Remove existing roadway and culvert approximately along the center line of U.S. Hwy. 6 and install southern 30 ft. of new box culvert and railing and grade channel.
- 5) Remove sidewalk along the south edge of U.S. Hwy. 6.
- 6) Remove portion of driveway on southeast property.
- 7) Install 18 in. entrance pipe under southeast driveway and bend pipe to outlet near the box culvert.
- 8) Provide temporary granular drive to northwest and southeast properties.



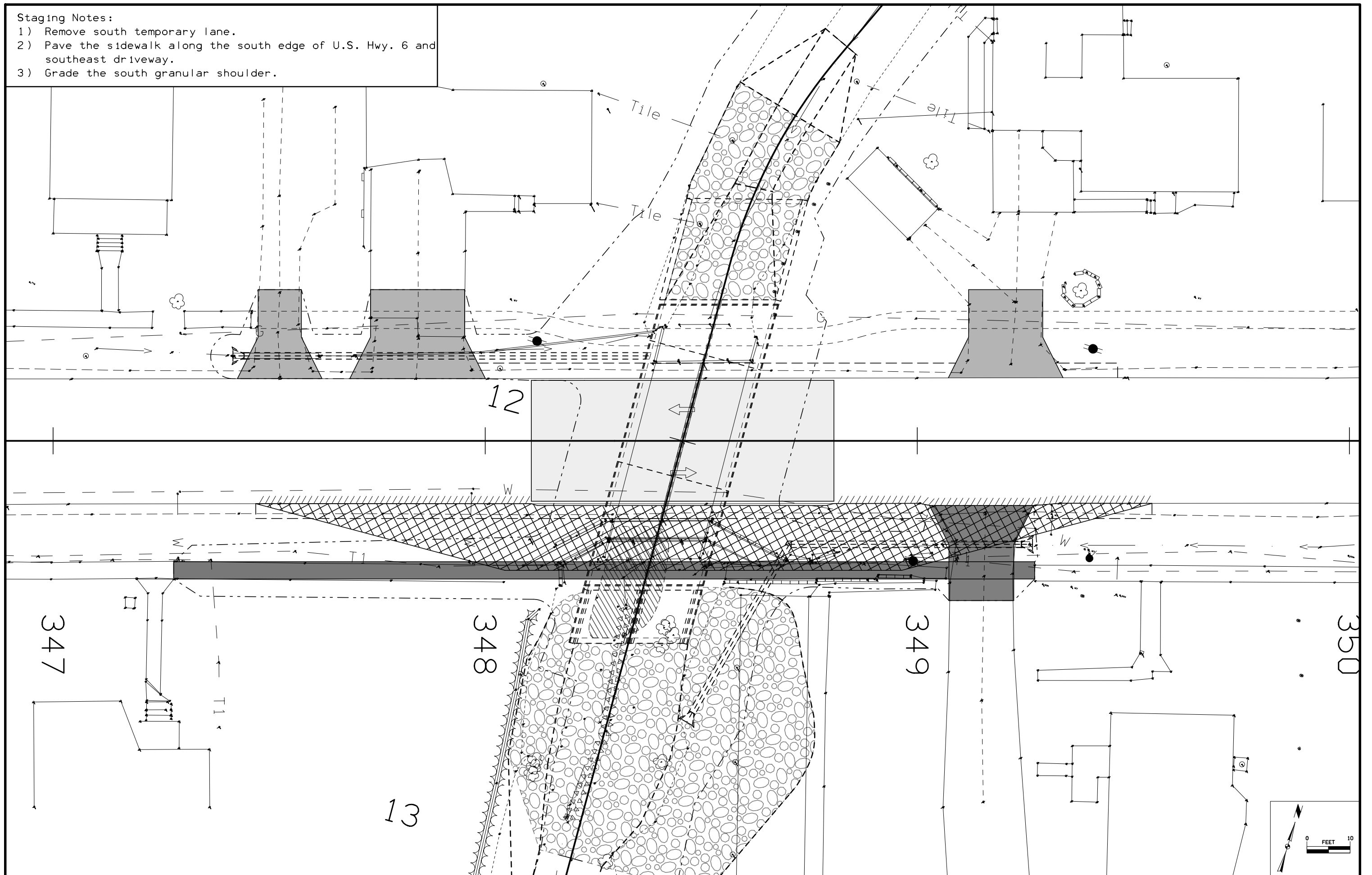
Staging Notes:

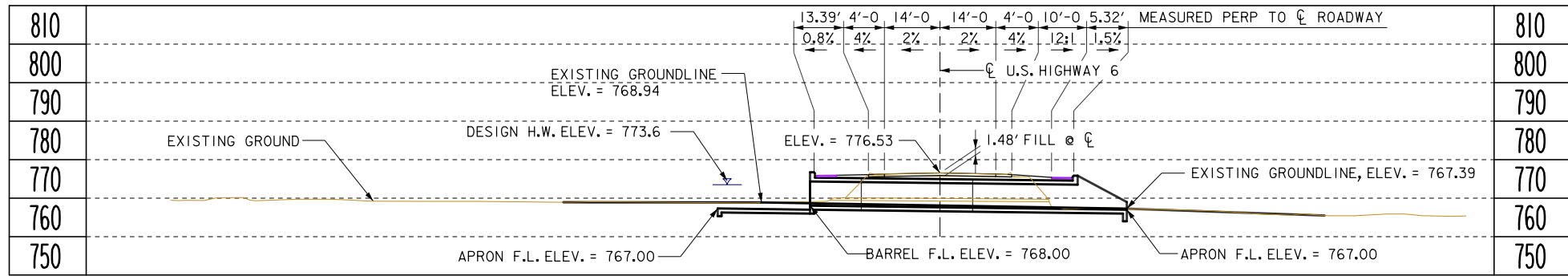
- 1) Pave 12 ft wide temporary lane approximately 18 ft south of U.S. Hwy. 6 center line.
- 2) Install barrier rail along north edge of the temporary lane, conforming with TC-211 requirements, creating a single lane of two-way traffic.
- 3) Remove the west bound lane and temporary pavement along the north edge.
- 4) Remove remaining existing culvert and install northern portion of box culvert and railing and grade channel.
- 5) Install 18 in. entrance pipe under northwest driveways and bend pipe to outlet near the box culvert.
- 6) Pave the northeast and northwest drives, providing ADA approved cross slopes through the proposed alignment of the future sidewalk.
- 7) Grade the north granular shoulder and slope for future ADA sidewalk.
- 8) Pave, paint and cut east and west bound lanes of U.S. Hwy. 6 and open to traffic.



Staging Notes:

- 1) Remove south temporary lane.
- 2) Pave the sidewalk along the south edge of U.S. Hwy. 6 and southeast driveway.
- 3) Grade the south granular shoulder.





**TRAFFIC ESTIMATE**

|           |      |        |
|-----------|------|--------|
| 2016 AADT | 1500 | V.P.D. |
| TRUCKS    | 3    | %      |
| 2036 AADT | 1900 | V.P.D. |
| TRUCKS    | 4    | %      |

PAVEMENT TIE-IN  
STA. 348+10.69  
ELEV. = 776.53

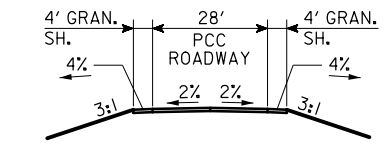
PAVEMENT TIE-IN  
STA. 348+80.69  
ELEV. = 776.53

0.00%

**PROPOSED GRADE**

**BENCHMARK:**

'X' CUT ON WEST END OF NORTH HEADWALL  
STA. 348+39.2, LT 18.3'  
ELEV. = 776.90



**TYPICAL APPROACH SECTION**

NOTE: 24' TRAVELED WAY  
6' EFFECTIVE SHOULDERS

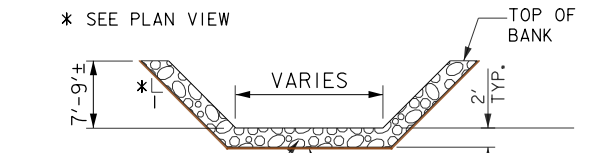
**LONGITUDINAL SECTION ALONG CL BOX CULVERT**

ANTICIPATED SETTLEMENT=NEGLECTIBLE

**HYDRAULIC DATA**

DRAINAGE AREA = 669 ACRES  
STREAM SLOPE 0.0140'/FT.  
DESIGN DISCHARGE, Q50 = 640 CFS  
DESIGN HIGH WATER ELEVATION, Q50 = 773.6  
DISCHARGE Q100 = 800 CFS  
HIGHWATER ELEVATION, Q100 = 774.3

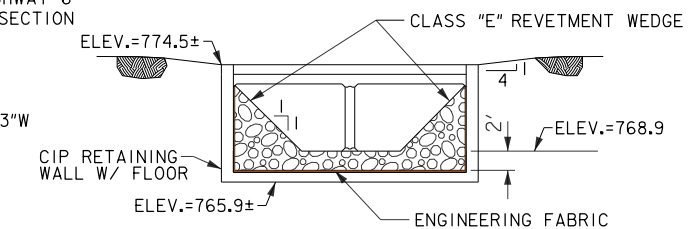
\* CALCULATIONS BASED ON INLET BURRIED 1.0'



**REVETMENT SECTION B-B**

**LOCATION**

UNNAMED STREAM UNDER U.S. HIGHWAY 6  
345' EAST OF HIGHWAY 58 INTERSECTION  
T-80N, R-12W, SECTION 12  
HARTFORD TOWNSHIP  
CITY OF LADORA  
IOWA COUNTY  
LAT: 41°45'13.5"N, LONG: 92°11'19.3"W

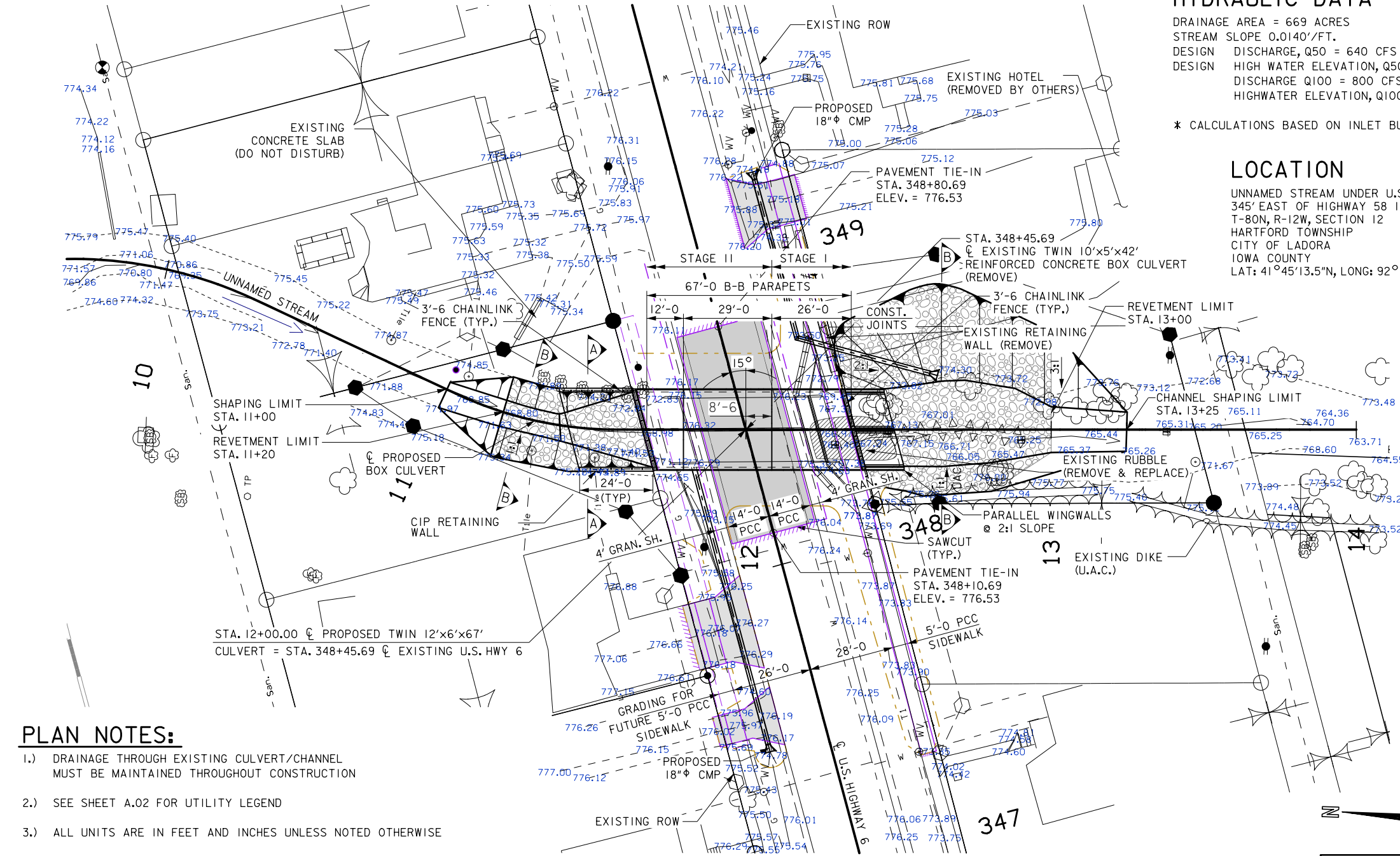


**REVETMENT SECTION A-A**

NOTE: FENCE NOT SHOWN

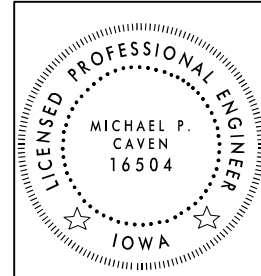
**ESTIMATED REVETMENT QUANTITIES**

|        | REVETMENT CL. "E" (TON) | ENGINEERING FABRIC (SY) | EXCAVATION (CY) |
|--------|-------------------------|-------------------------|-----------------|
| INLET  | XX                      | XX                      | XX              |
| OUTLET | XX                      | XX                      | XX              |
| TOTAL  | XX                      | XX                      | XX              |



**PLAN NOTES:**

- 1.) DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION
- 2.) SEE SHEET A.02 FOR UTILITY LEGEND
- 3.) ALL UNITS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE
- 4.) SEE 'J' SHEETS FOR STAGING DETAILS
- 5.) SEE 'D' SHEETS FOR ADDITIONAL DRIVE, SIDEWALK AND PIPE INFORMATION



I hereby certify that this Engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

License number 16504  
My license renewal date is December 31, 2014  
Pages or sheets covered by this seal:

DESIGN FOR 15° SKEW (LA)

**TWIN 12'x6'x67' REINFORCED CONCRETE BOX CULVERT**

**SITUATION PLAN - OPTION I**

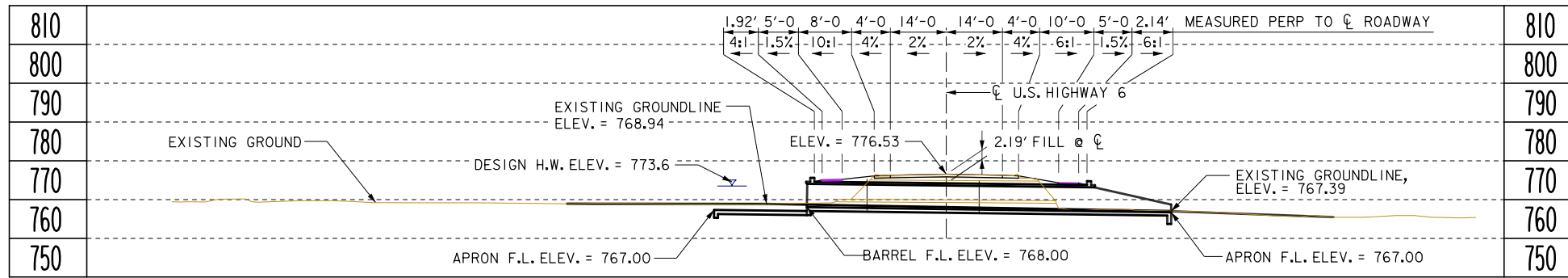
STA. 348+45.69, EXISTING CL U.S. HIGHWAY 6

CITY OF LADORA, IOWA COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. OF FILE NO. 31126 DESIGN NO. 315





LONGITUDINAL SECTION ALONG CL BOX CULVERT  
ANTICIPATED SETTLEMENT=NEGLECTIBLE

**TRAFFIC ESTIMATE**

|           |      |        |
|-----------|------|--------|
| 2016 AADT | 1500 | V.P.D. |
| TRUCKS    | 3    | %      |
| 2036 AADT | 1900 | V.P.D. |
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PAVEMENT TIE-IN  
STA. 348+10.69  
ELEV. = 776.53

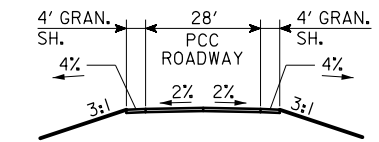
PAVEMENT TIE-IN  
STA. 348+80.69  
ELEV. = 776.53

0.00%

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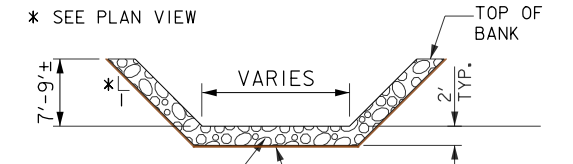
TYPICAL APPROACH SECTION

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6' EFFECTIVE SHOULDERS

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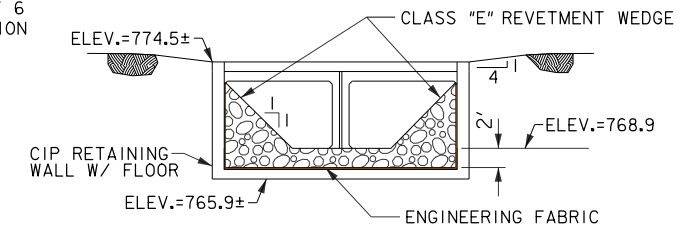
\* CALCULATIONS BASED ON INLET BURRIED 1.0'



REVETMENT SECTION B-B

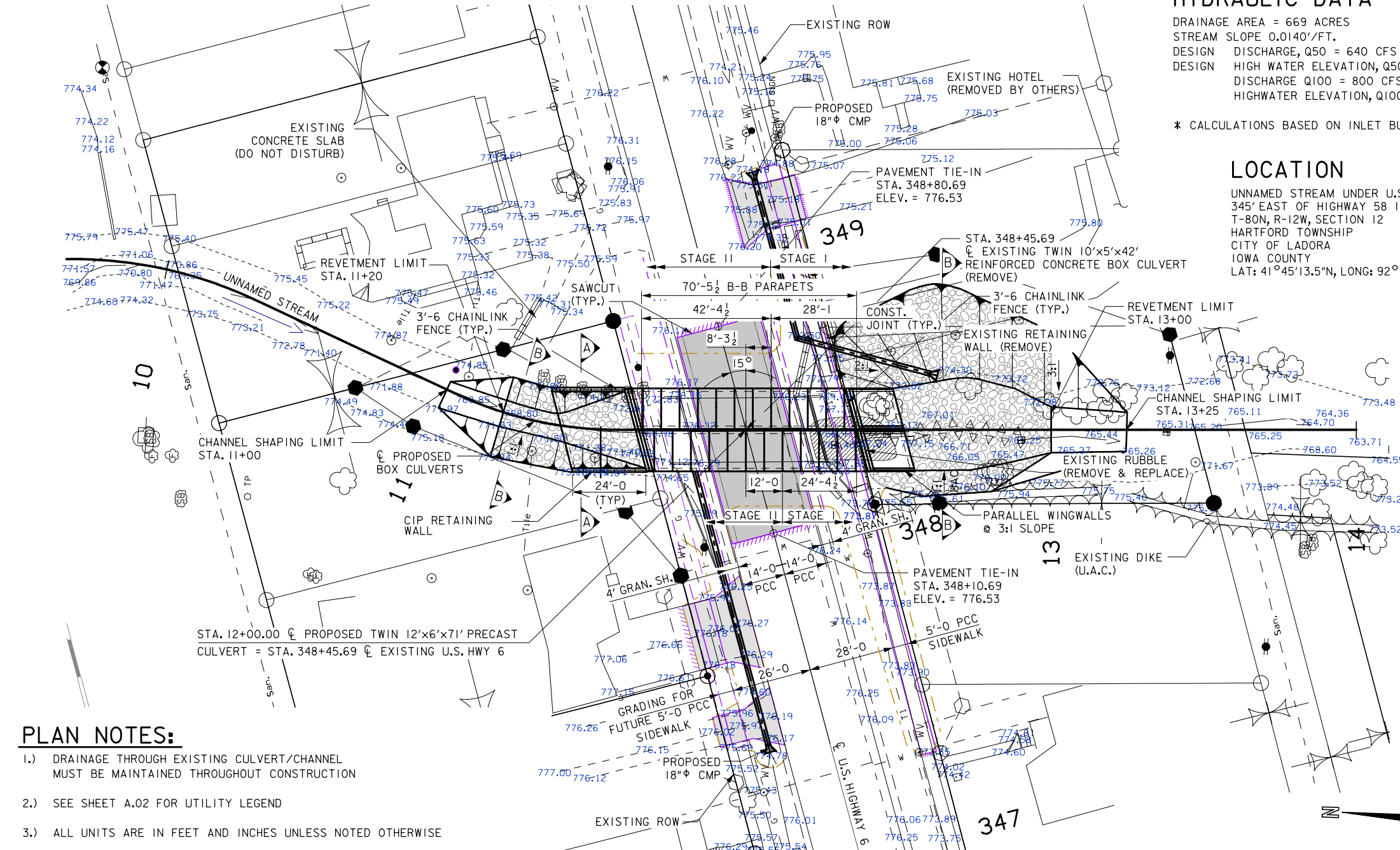
**LOCATION**

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345' EAST OF HIGHWAY 58 INTERSECTION  
T-80N, R-12W, SECTION 12  
HARTFORD TOWNSHIP  
CITY OF LADORA  
IOWA COUNTY  
LAT: 41°45'13.5"N, LONG: 92°11'19.3"W



REVETMENT SECTION A-A  
NOTE: FENCE NOT SHOWN

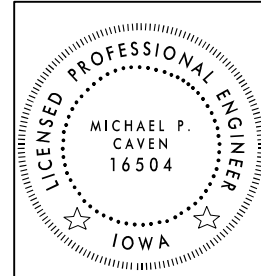
| ESTIMATED REVETMENT QUANTITIES |                         |                         |                 |
|--------------------------------|-------------------------|-------------------------|-----------------|
|                                | REVETMENT CL. "E" (TON) | ENGINEERING FABRIC (SY) | EXCAVATION (CY) |
| INLET                          | XX                      | XX                      | XX              |
| OUTLET                         | XX                      | XX                      | XX              |
| TOTAL                          | XX                      | XX                      | XX              |



SITUATION PLAN

**PLAN NOTES:**

- 1.) DRAINAGE THROUGH EXISTING CULVERT/CHANNEL MUST BE MAINTAINED THROUGHOUT CONSTRUCTION
- 2.) SEE SHEET A.02 FOR UTILITY LEGEND
- 3.) ALL UNITS ARE IN FEET AND INCHES UNLESS NOTED OTHERWISE
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- 5.) SEE 'D' SHEETS FOR ADDITIONAL DRIVE, SIDEWALK AND PIPE INFORMATION

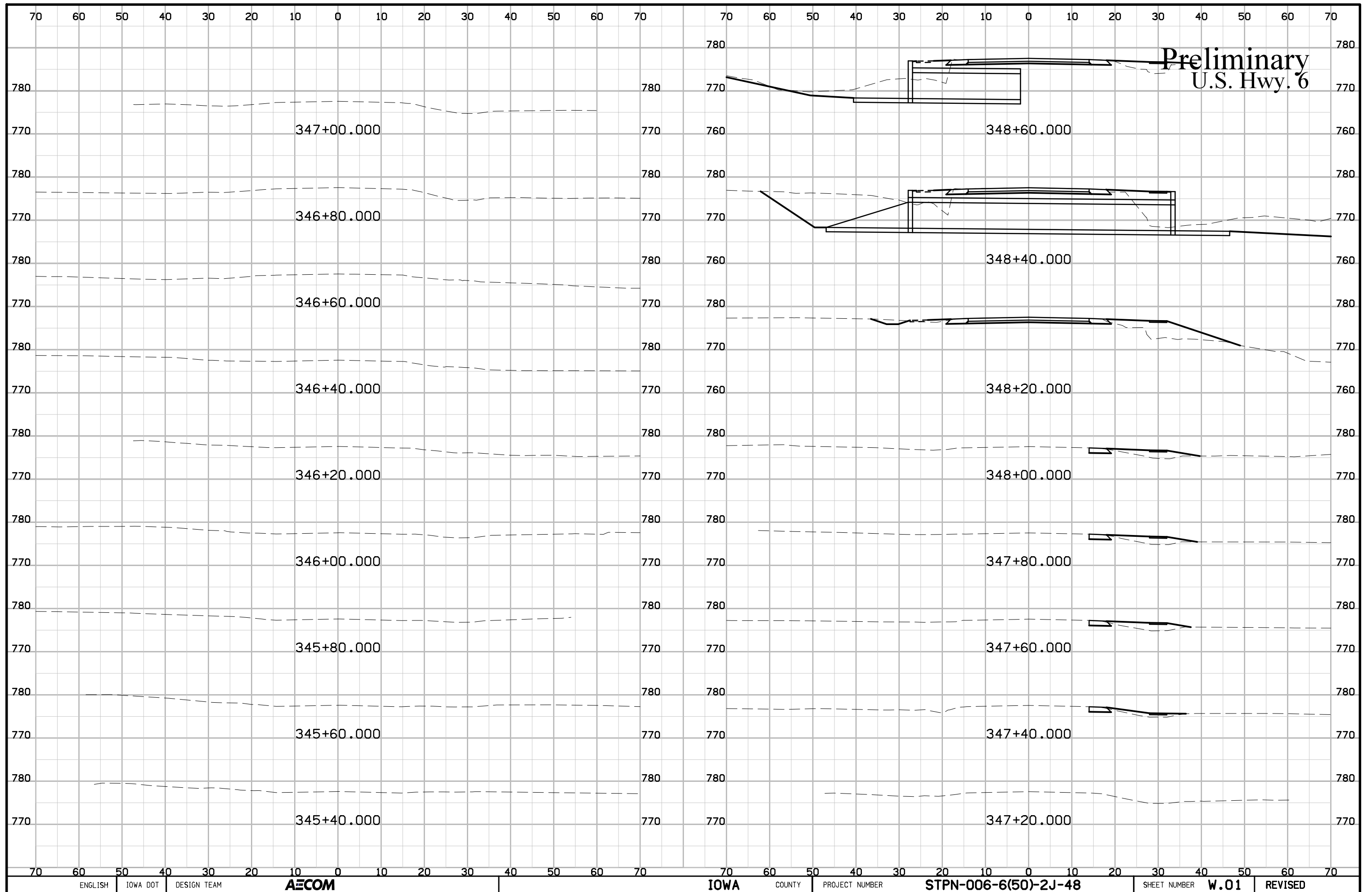


I hereby certify that this Engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.

License number 16504  
My license renewal date is December 31, 2014  
Pages or sheets covered by this seal:

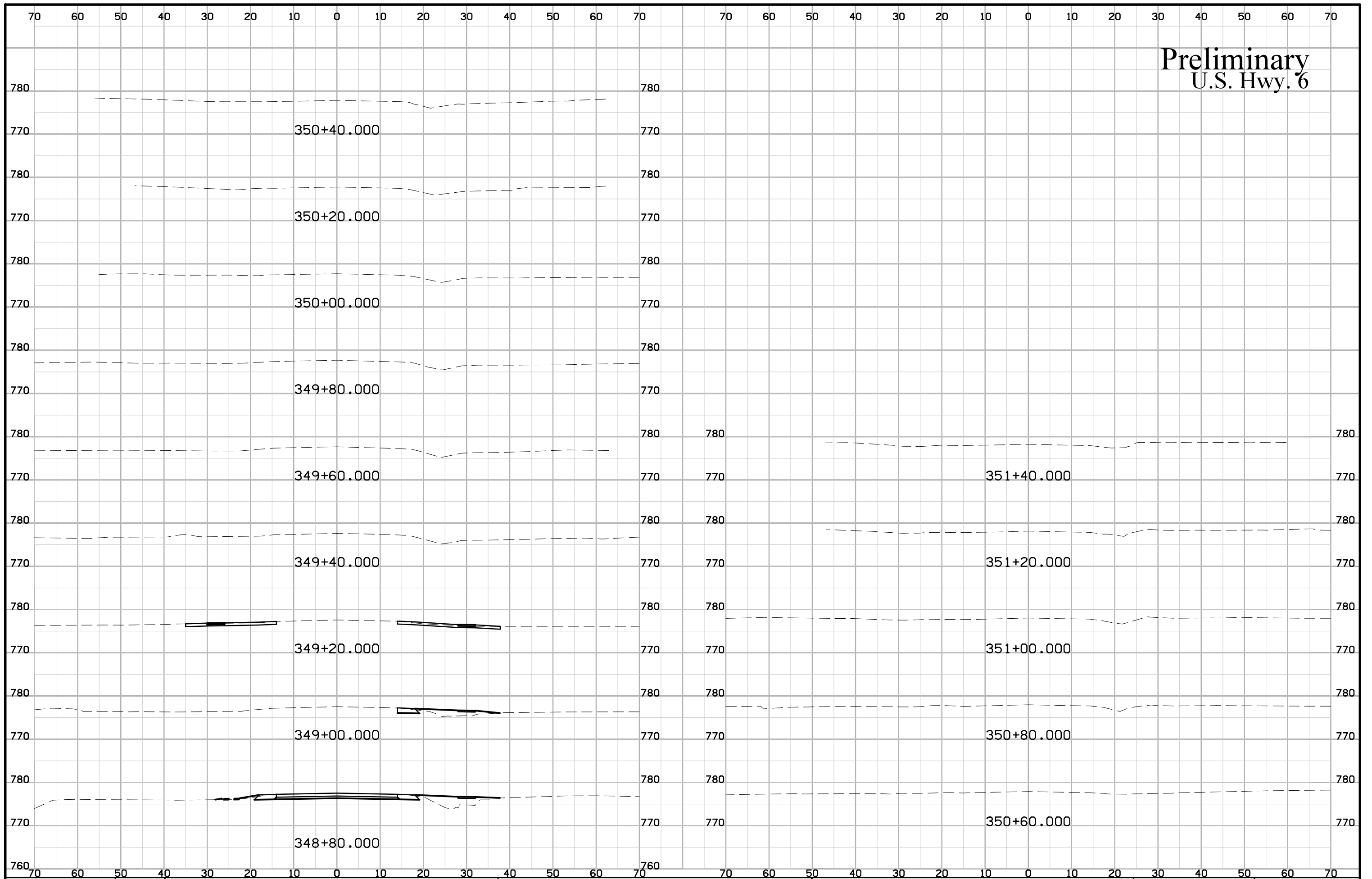
DESIGN FOR 15° SKEW (LA)  
**TWO SINGLE 12'x6'x70'-5 3/16" PRECAST CONCRETE BOX CULVERTS SITUATION PLAN - OPTION 2**  
STA. 348+45.69, EXISTING CL U.S. HIGHWAY 6  
CITY OF LADORA, IOWA COUNTY  
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. OF FILE NO. 31126 DESIGN NO. 315

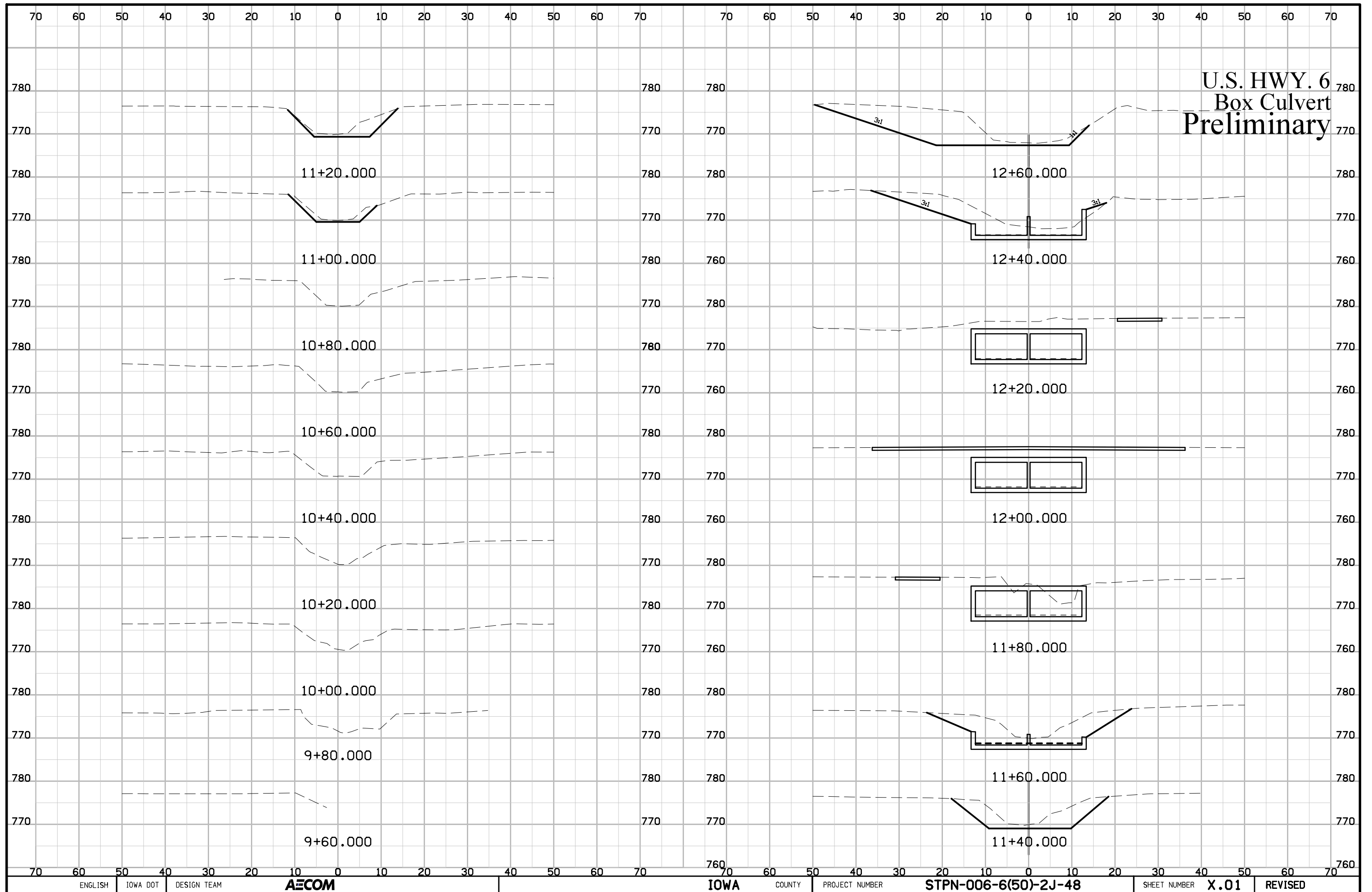




Preliminary  
U.S. Hwy. 6

Preliminary  
U.S. Hwy. 6







# U.S. HWY. 6 Box Culvert Preliminary

