



**APPLICATION AND AGREEMENT FOR USE OF
HIGHWAY RIGHT-OF-WAY FOR UTILITIES ACCOMMODATION**

Form 811025 (03-16)

FOR DEPARTMENT USE ONLY

Permit Number 29U-2017-028	Highway Number US 61	County Des Moines
DOT Project Number NHS-61-2 (50) --19-29		
Expiration/Completion Date 12/31/2017		

APPLICANT (INDIVIDUAL OR COMPANY)

First Name Chad	Middle Initial M	Last Name Ruden	Phone Number 800-728-1242	Ext. 7337
Company Name Eastern Iowa Light & Power REC			Phone Number 800-728-1242	Ext.
Street Address 1705 W 3rd St		City/Town Wilton	State IA	ZIP Code 52778-3003
e-Mail Address chad.ruden@easterniowa.com		Secondary e-Mail Address		

INSTALLATION TO BE ACCOMMODATED

Approval is hereby requested to enter within the state highway right-of-way for the accommodation of a utility installation as detailed on the attachments and further described as follows.

The installation shall consist of:

Move utility for Hwy#61 road grade from Burlington to Mediapolis. Start at mile Marker 44 and Stop at Mile marker 53. Install underground cable 7200v Bore under new Hwy#61 20ft Deep installed in 2" Duct & 4" Duct. also plowing cable. See attachments for Station Markers and route of Cable Highlighted to be installed.

and shall be located as shown on the detailed plan attached hereto. (See current Iowa Department of Transportation Utility Accommodation Policy for submittal of detailed plan requirements. See Section 15.8(3).) <http://www.iowadot.gov/traffic/pdfs/UtilityPolicy.pdf>

WORK SITE LOCATION

The proposed work as described above is located in Section 23 , Twp. 70N , Range 3W on Highway No. 61 generally located 1 (miles) North (direction) from Burlington (city, county line, or other landmark). Work proposed is more specifically located as being from ~~44~~ 45.24 (Milepost #) and ~~1215+30~~ 1263+00 (Highway Station) to ~~53~~ 46.08 (Milepost #) and ~~1651+10~~ 1304+37 (Highway Station) on the E & W side of highway.

Disclosure Statement: The information furnished on this form will be used by the Department of Transportation to determine approval or denial of the application. Failure to provide all pertinent information will result in denial of the application. Information furnished is public information and copies may be provided to the public upon request.

The utility company, corporation, applicant, permit holder or licensee, (hereinafter referred to as the Permit applicant) agrees with the Iowa Department of Transportation (hereafter referred to as the Department) that the following stipulations and those special requirements as listed on this document shall govern under this permit after it is approved by the Department.

A. General

1. The installation shall meet the requirements of local municipal, county, state, and federal franchise rules and regulations, regulations and directives of the Iowa State Commerce Commission; the Iowa Department of Natural Resources, all rules and regulations of the Department and any other laws or regulations applicable.
2. The Permit Holder shall be fully responsible for any future adjustments of the facilities within the established highway right-of-way caused by highway construction or maintenance operations.
3. As per Section 115.8(8) of the Utility Accommodation Policy, As-Built plans are due within 90 days after completion of construction, the utility owner shall submit to the district representative an as-built plan.
4. The work described in this permit shall be completed as proposed in compliance with the stipulations and special requirements within one year from the date Department approval is received for said request. Failure on the part of the Permit Holder to abide by the stipulations or in constructing the work described as stipulated and within the time frame stated shall render this agreement and request null and void. The Permit Holder also agrees to save the State of Iowa and the Department harmless of any damages or losses that may be sustained by any person, or persons, on account of the conditions and requirements of this agreement.
5. Non-compliance with any of the terms of the Department's policy, permit, or agreement, may be considered cause for shut-down of construction operations, revocation of the permit, or withholding of relocation reimbursement and/or withholding of future application approvals until compliance is confirmed. The cost of any work deemed necessary to be performed by the State in removal of non-complying construction will be assessed against the Permit Holder.

B. Construction and Maintenance

1. The location, construction and maintenance of the utility installation covered by this application shall be in accordance with the current Department's Utility Accommodation Policy. <http://www.iowadot.gov/traffic/pdfs/UtilityPolicy.pdf>
2. Before beginning any work in the highway right-of-way, it is the responsibility of the Permit Holder to obtain an easement from the drainage district if necessary. The Department assumes no responsibility for advising the Permit Holder of each location of a drainage district crossing. It is the Permit Holder's responsibility to locate these crossings and obtain any necessary easements or permission from the drainage district. See Code of Iowa, Chapter 468 for additional information.
3. A copy of the approved permit shall be available on the job site at all times for examination by Department personnel.
4. Operations in the construction and maintenance of this utility installation shall be carried on in such a manner as to cause minimum interference to or distraction of traffic on said highway.
5. Traffic protection shall minimally be in accordance with Part VI of the current Manual on Uniform Traffic Control Devices for Streets and Highways. The applicant shall be responsible for correctly using traffic control devices including signs, warning lights, and channelizing devices as needed while work is in progress or the clear zone is impacted. Flagging operations are the responsibility of the applicant. The Department's TC XXX Series Standards are the preferred traffic control specification plans. http://www.iowadot.gov/design/stdpln_tc.htm
6. The applicant shall seed and mulch all disturbed areas within the highway right-of-way and shall be responsible for the vegetative cover until it becomes well established. Any surfaced areas such as driveways or shoulders and sodded waterways and plantings which are disturbed shall be restored to their original condition. Any damage to any other underground facilities during installation shall be repaired at the permit holder's expense.
7. All personnel in the highway right-of-way shall wear ANSI 107 Class 2 apparel at all times when exposed to traffic or construction equipment.
8. As per Policy Section 115.4(9) parking or storage in the clear zone is prohibited. When not in actual use, vehicles, equipment and materials shall not be parked or stored within the clear zone or median.
9. Unless specifically noted in Special Requirements section, all work performed within the right-of-way shall be restricted to 30 minutes after sunrise to 30 minutes before sunset.
10. Pedestals shall be placed within 12 inches of the right-of-way line.
11. All above and below ground appurtenances (pedestals, hydrants, drains, accesses, etc.) shall be marked with high visibility posts and signs. The minimum height requirement for the signs shall be 5 foot. Urban Roadway Sections may be exempted with department approval.

C. Liability

1. To the extent allowable by law, the Permit Holder agrees to indemnify, defend, and hold the Department harmless from any action or liability arising out of the design, construction, maintenance, placement of traffic control devices, inspection, or use of the Permit Holder's facilities. This agreement to indemnify, defend, and hold harmless applies to all aspects of the Department's application review and approval process, plan and construction reviews, and funding participation.
2. The Permit Holder shall indemnify and save harmless the State of Iowa, its agencies and employees, from any and all causes of action, suits at law or in equity, for losses, damages, claims or demands, and from any and all liability and expense of whatsoever nature, arising out of or in connection with the Permit Holder's use or occupancy of the public highway.
3. The State of Iowa and the Department assume no responsibility for damages to the Permit Holder's property occasioned by any construction or maintenance operations on said highway if the facilities are not located in accordance with this permit.
4. The State of Iowa, its agencies or employees, will be liable for expense incurred by the Permit Holder in its use and occupancy of the highway right-of-way only when negligence of the State, its agencies or employees, is the sole proximate cause of such expense. Whether in contract, tort or otherwise, the liability of the State, its agencies and employees, is limited to the reasonable, direct expense to repair damaged utilities, and in no event will such liability extend to loss of profits or business, indirect, special, consequential or incidental damages.

D. Notification

1. The Permit Holder is responsible for contacting Iowa One-Call (1-800-292-8989) and request the location of all underground utilities forty-eight (48) hours before excavation. Before beginning work in the highway right-of-way, the Permit Holder shall also contact any other known utility located in the area of the proposed work.
2. The Permit Holder agrees to give the Department forty-eight (48) hour notice of its intention to start construction or to perform routine maintenance on the highway right-of-way. Said notice shall be made to the local DOT contact person whose name is shown on Page 3.
3. **511 Notification**-In accordance with Iowa Code section 321.348, cities and utilities may not obstruct or close primary highways or primary highway extensions (State highways within city limits) without prior consent of the Iowa DOT, except in emergency situations. Before setting up a lane closure or a vertical/horizontal restriction of any kind on a primary highway, call your local Iowa DOT Maintenance garage and call the Traffic Management Center per attached documents. Except in emergency situations, a 10 day advance notice is required.

<http://www.iowadot.gov/traffic/utility/pdfs/511UtilityNotification.pdf>

E. Buy America


Buy America applies to relocations of utility facilities that must move due to highway projects under certain specific conditions that include reimbursable locations and relocations due to interstate projects. Please contact the Department's District Engineering Operation Technician (EOT) for more information on Buy America requirements or visit the following link: <http://www.iowadot.gov/traffic/utility/utility.html>

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Special Requirements - in addition to the stipulations above, the following special requirements shall apply to this permit:

Applicant Signature and Agreement

The undersigned have read the stipulations of this permit agreement as stated, as well as attachments which may be included, and by signing this application agree to abide by all stipulations and to complete the work as proposed in compliance with the stipulations and attachments within one year from the date Department approval is granted for said request. Failure on the part of the applicant to abide by the stipulations or to construct the work desired as stipulated and within the time frame stated shall render this agreement and request null and void. The undersigned also agrees to save harmless the State of Iowa and the Iowa Department of Transportation from any damage or losses that may be sustained by any person or persons on account of the conditions and requirements of this agreement.

Name of Agent (Print or Type) Chad Ruden	Agent/Owner (Signature) 	Title Engineering Tech
Name of Owner (Print or Type) Eastern Iowa Light & Power REC	Date 10-11-2017	
e-Mail Address chad.ruden@easterniowa.com		

CITY ACTION (IF PROPOSED WORK IS WITHIN AN INCORPORATED CITY, CITY ACTION IS REQUIRED)

"The undersigned city joins in the grants embodied in the above permit executed by the Iowa Department of Transportation on condition that all of the covenants and undertakings therein running to the Iowa Department of Transportation shall inure to the benefit of the undersigned city and recommends action on said permit application as noted below by the delegated city official".


Recommend Approval Do Not Recommend Approval None Required

Handwritten Signature	Title	Date
Type or Print Name	Authorized Official for the City of	
e-Mail Address		

COUNTY ACTION (IF PROPOSED WORK CROSSES COUNTY RIGHT-OF-WAY, COUNTY ACTION IS REQUIRED)

"The undersigned county joins in the grants embodied in the above permit executed by the Iowa Department of Transportation on condition that all of the covenants and undertakings therein running to the Iowa Department of Transportation shall inure to the benefit of the undersigned county and recommends action on said permit application as noted below by the delegated county official".

Recommend Approval Do Not Recommend Approval None Required

Handwritten Signature 	Title County Engineer	Date 10-11-17
Type or Print Name Brian Carter	Authorized Official for the County of Des Moines	
e-Mail Address office@dmcroads.org		


FEDERAL HIGHWAY ADMINISTRATION ACTION (WHEN REQUIRED)

Recommend Approval Do Not Recommend Approval None Required

Authorized FHWA Representative Signature	Date
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DEPARTMENT OF TRANSPORTATION FINAL ACTION

Application Approved Application Denied Permit Number: 29U-2017-028

Authorized Highway District Representative Brenda Sanders	Signature 	Date 10/19/17
e-Mail Address brenda.sanders@iowadot.us		

Notice of intention to commence activities on the highway rights-of-way shall be submitted by the applicant a minimum of 48 hours prior to actually commencing the activities as herein granted by this approved application. Notice is to be given to the following Iowa Department of Transportation representative. Except in emergencies a 10 day advance notice is required for lane restrictions of any kind:

Local DOT Contact Person (Type or Print Name) Lauren Giarmino or Marv May		
Street Address 205 E Taft St.	City/Town Mt. Pleasant	Phone Number 319-385-2211
e-Mail Address lauren.giarmino@iowadot.us or marv.may@iowadot.us	State IA	ZIP Code 52641

SEE PAGE 2 OF CORRECTIONS

Start Bore 1-Cable
7200v
Sta 1266+24 *1265+32*
CL 139'
Depth 20ft top of
Duct

Plow Cable 1-
Cable 7200v
Sta 1270+00
CL 139'
Depth 4ft

End Bore 2" Duct
1- Cable 7200v
Total Dist 252ft
Sta 1271+94
CL 140'
Depth 20ft top of
Duct

End Bore 2" Duct
1- Cable 7200v
Sta 1279+43
CL 245'
Depth 20ft top of
Duct

Plow Cable 1-
Cable 7200v
Sta 1273+00
CL 139' *1263+00*
Depth 4ft
Existing Pole

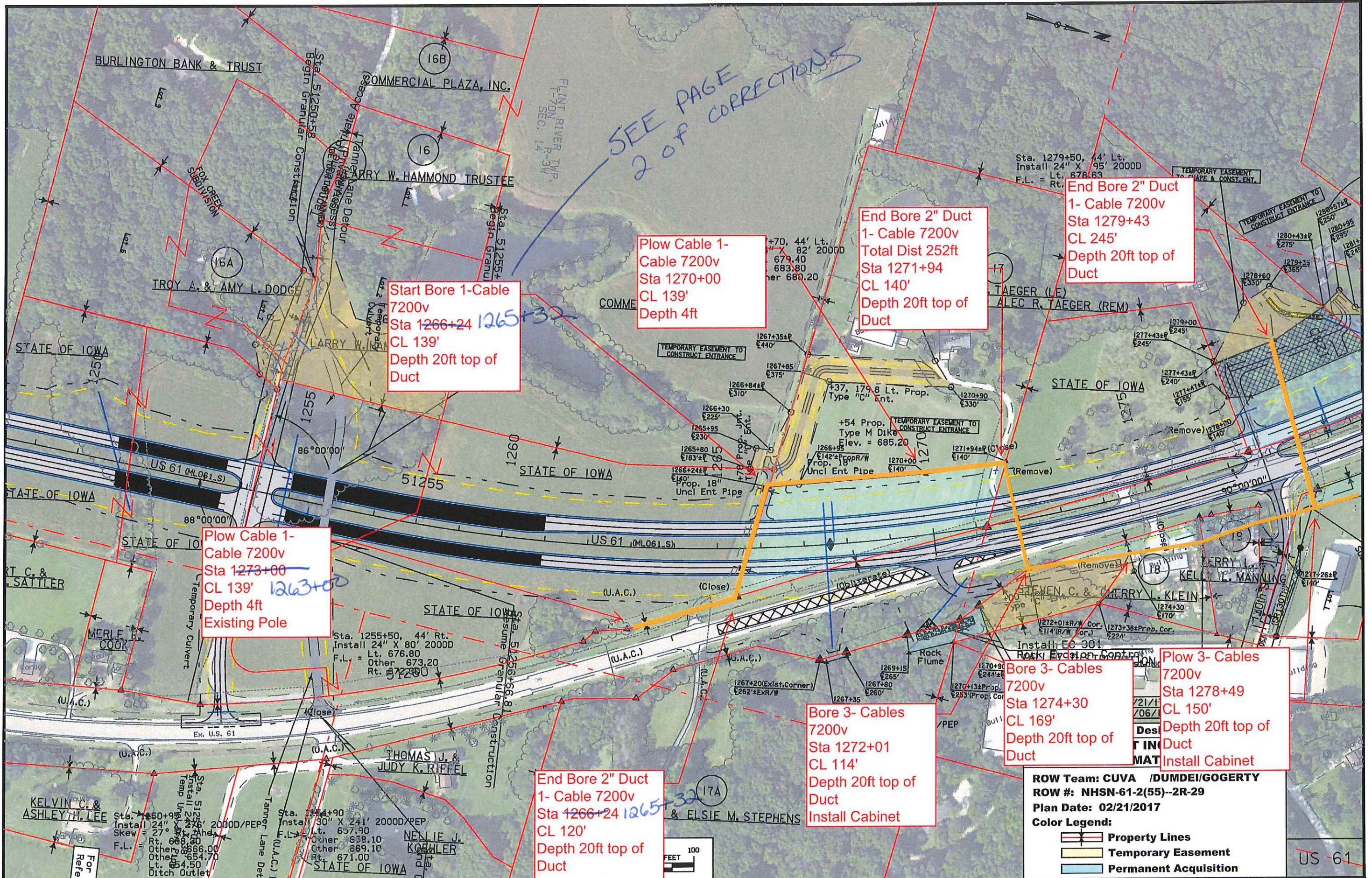
Bore 3- Cables
7200v
Sta 1272+01
CL 114'
Depth 20ft top of
Duct
Install Cabinet

Bore 3- Cables
7200v
Sta 1274+30
CL 169'
Depth 20ft top of
Duct

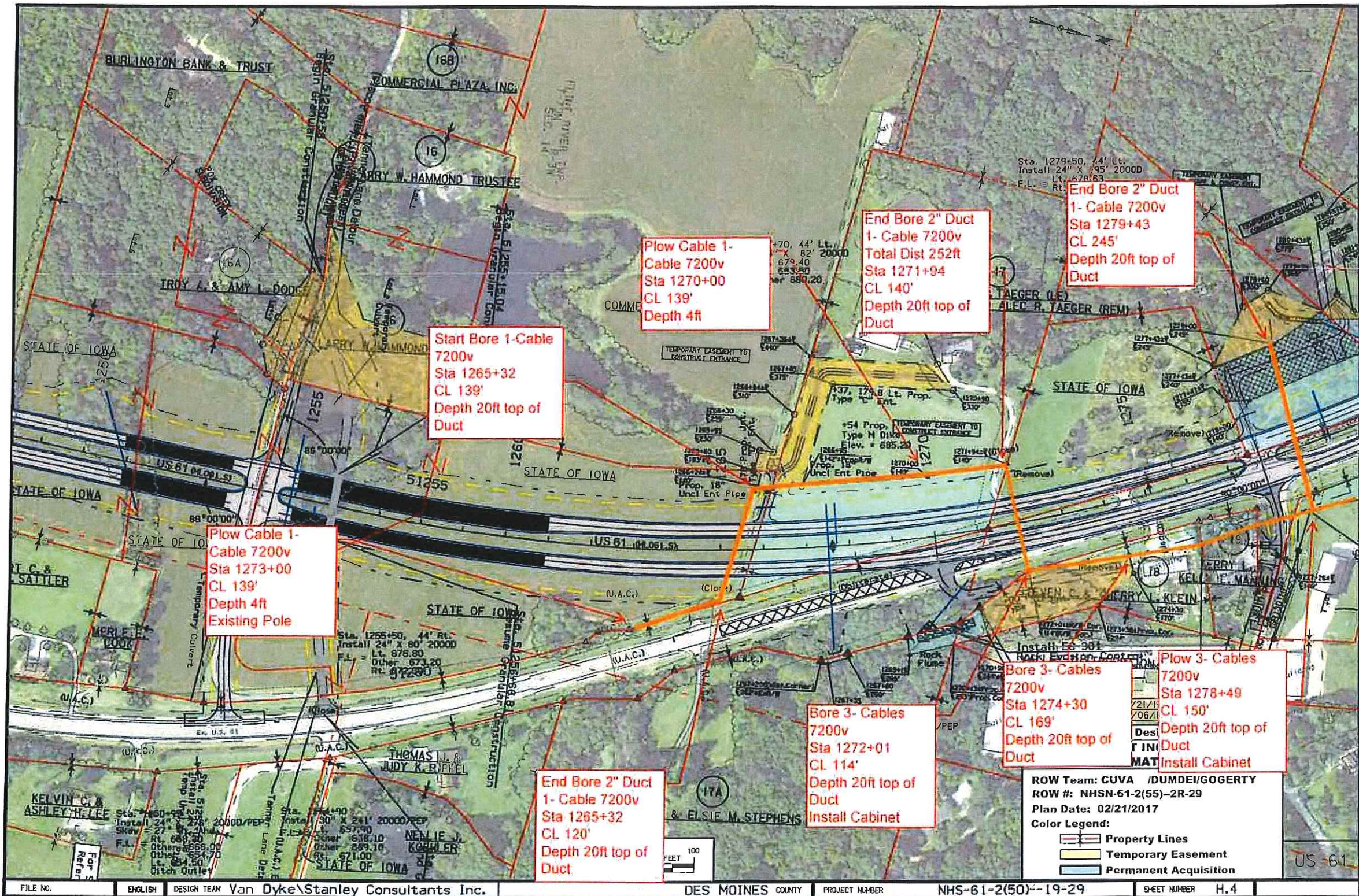
Plow 3- Cables
7200v
Sta 1278+49
CL 150'
Depth 20ft top of
Duct
Install Cabinet

End Bore 2" Duct
1- Cable 7200v
Sta 1266+24 *1265+32*
CL 120'
Depth 20ft top of
Duct

ROW Team: CUVA /DUMDEI/GOGERTY
ROW #: NHSN-61-2(55)--2R-29
Plan Date: 02/21/2017
Color Legend:

Changed



Start Bore 1-Cable
7200v
Sta 1265+32
CL 139'
Depth 20ft top of
Duct

Plow Cable 1-
Cable 7200v
Sta 1270+00
CL 139'
Depth 4ft

End Bore 2" Duct
1- Cable 7200v
Total Dist 252ft
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End Bore 2" Duct
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Plow Cable 1-
Cable 7200v
Sta 1273+00
CL 139'
Depth 4ft
Existing Pole

Bore 3- Cables
7200v
Sta 1274+30
CL 169'
Depth 20ft top of
Duct

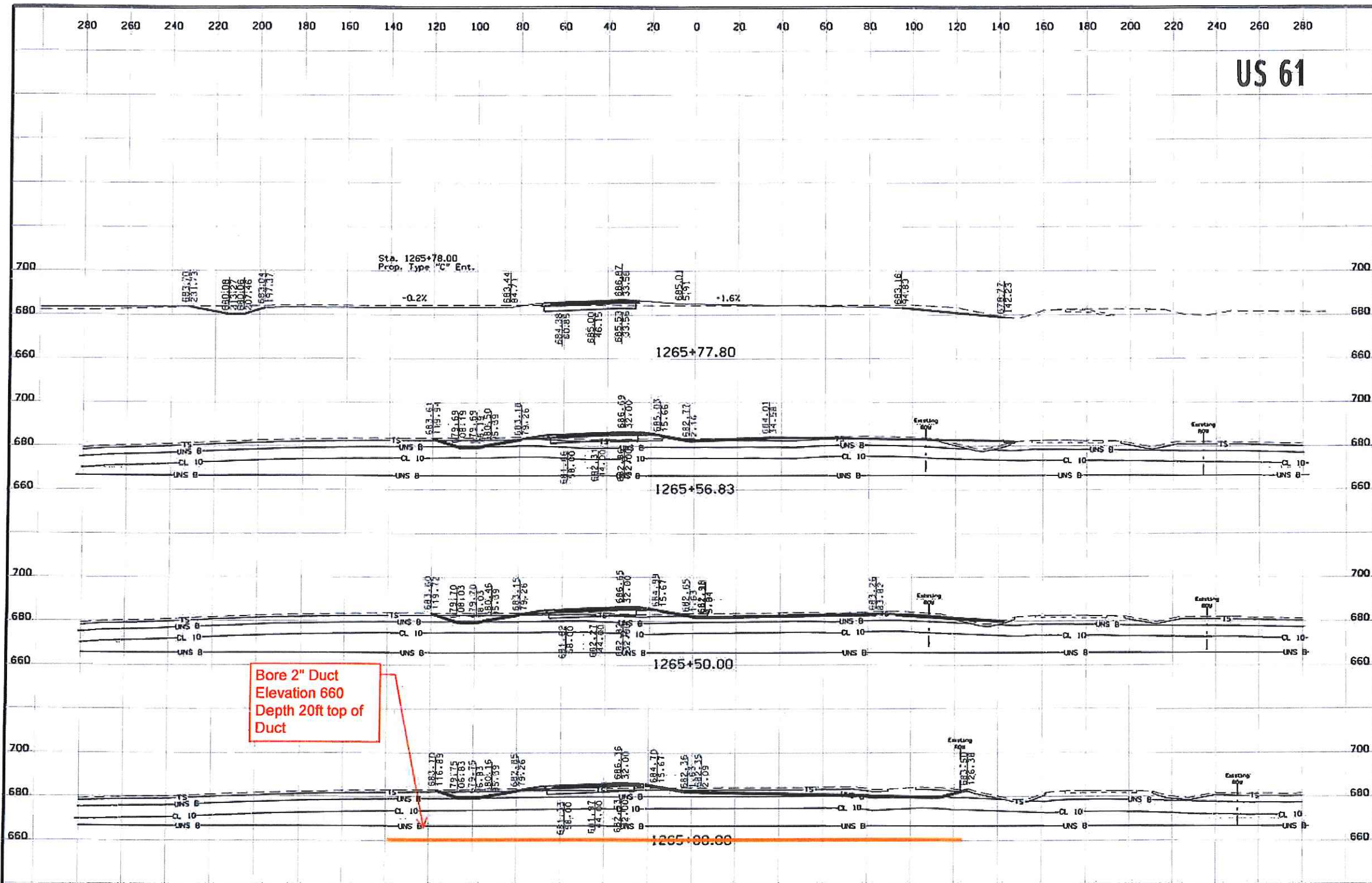
Plow 3- Cables
7200v
Sta 1278+49
CL 150'
Depth 20ft top of
Duct
Install Cabinet

Bore 3- Cables
7200v
Sta 1272+01
CL 114'
Depth 20ft top of
Duct
Install Cabinet

End Bore 2" Duct
1- Cable 7200v
Sta 1265+32
CL 120'
Depth 20ft top of
Duct

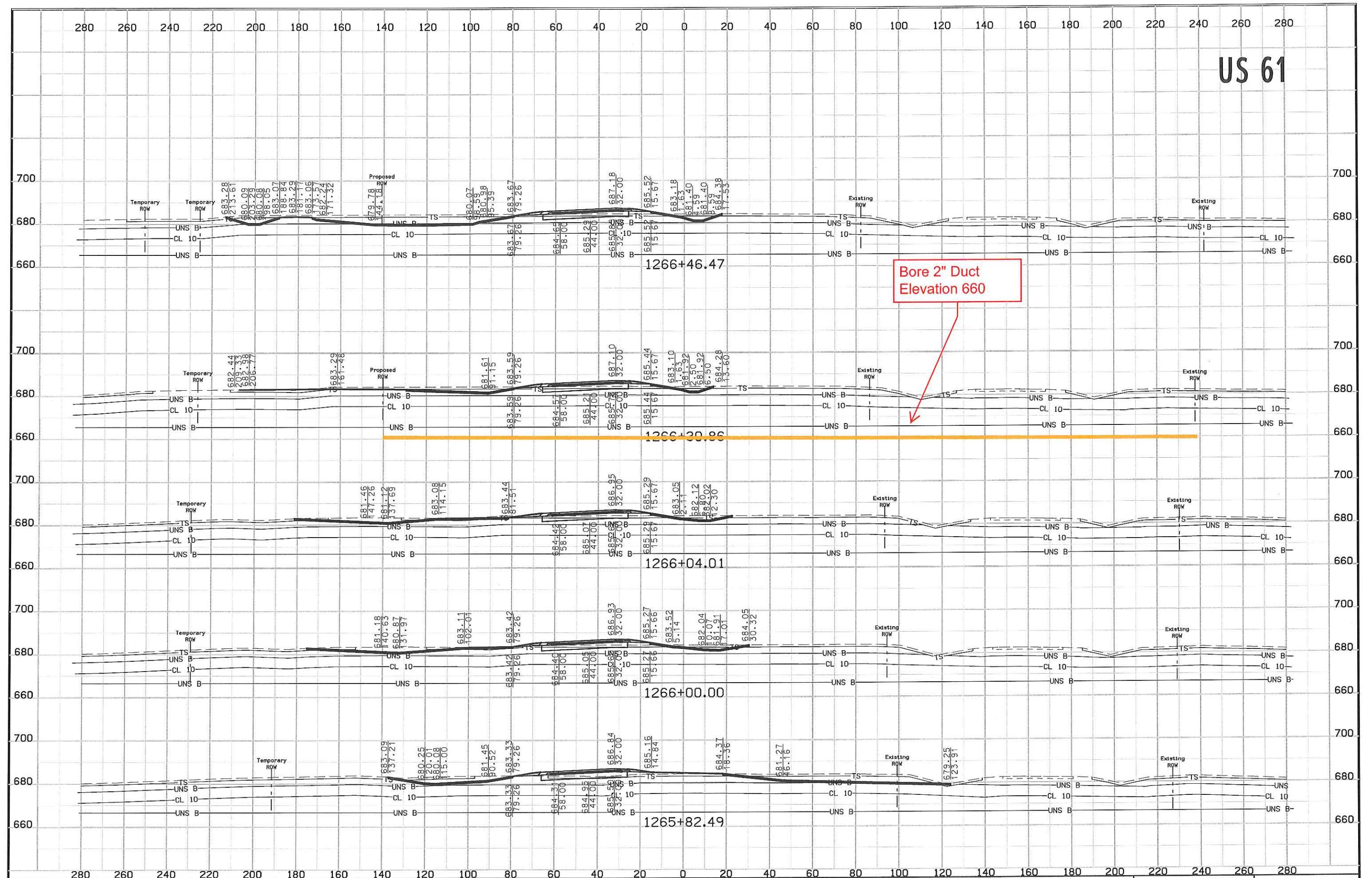
ROW Team: CUVA /DUMDEI/GOGERTY
ROW #: NHSN-61-2(55)-2R-29
Plan Date: 02/21/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

Changed

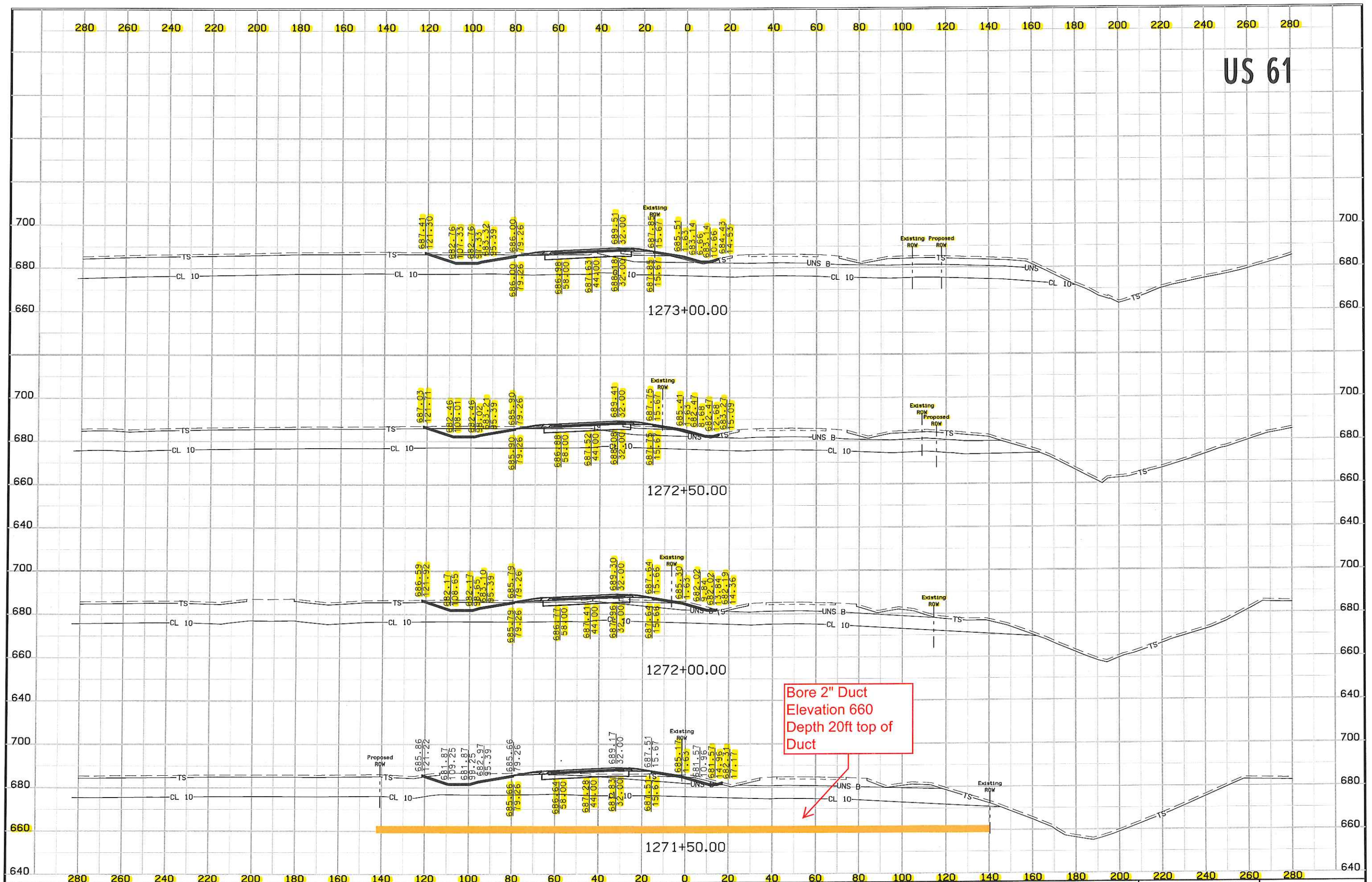


Bore 2" Duct
Elevation 660
Depth 20ft top of
Duct

US 61

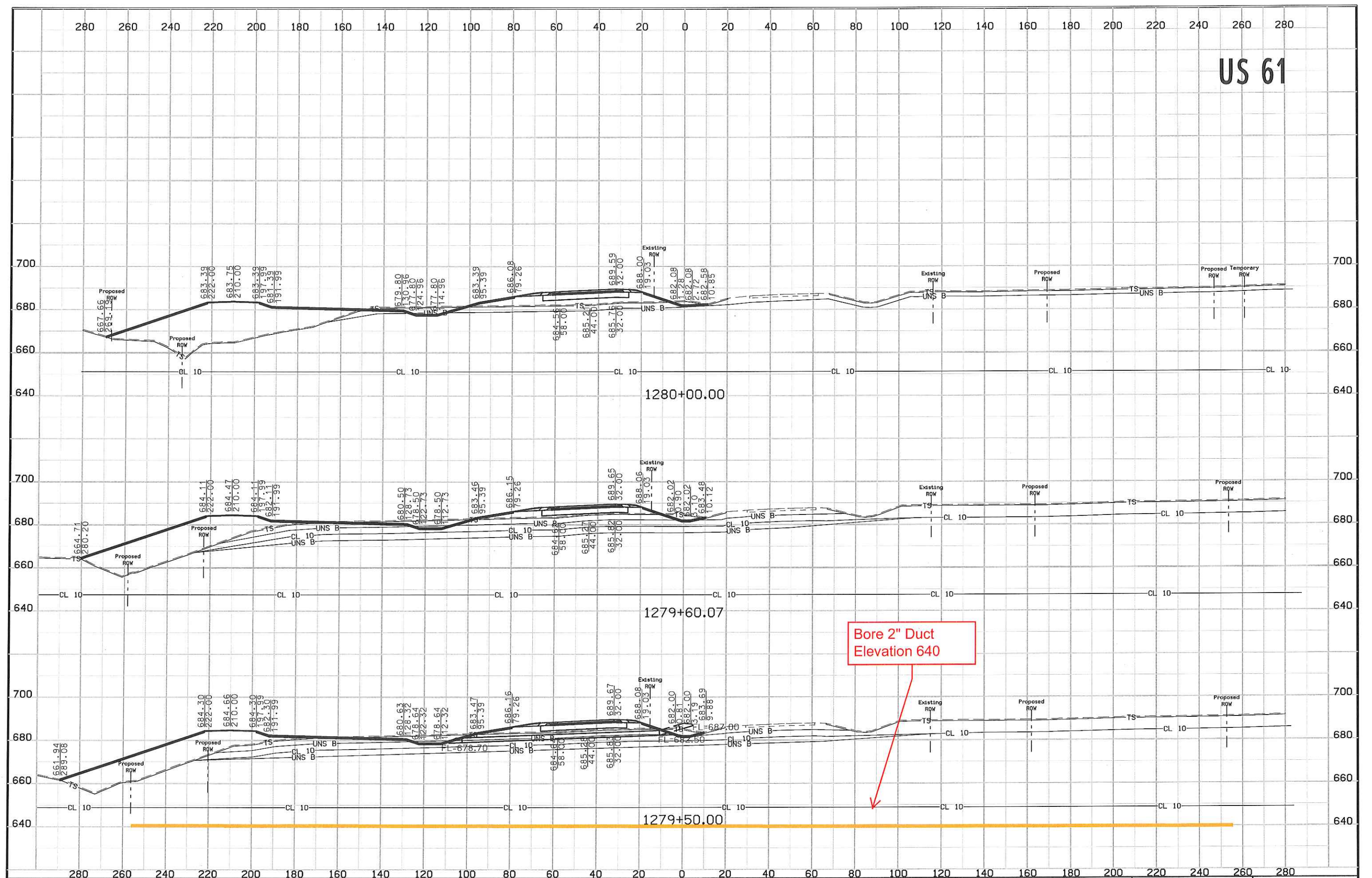


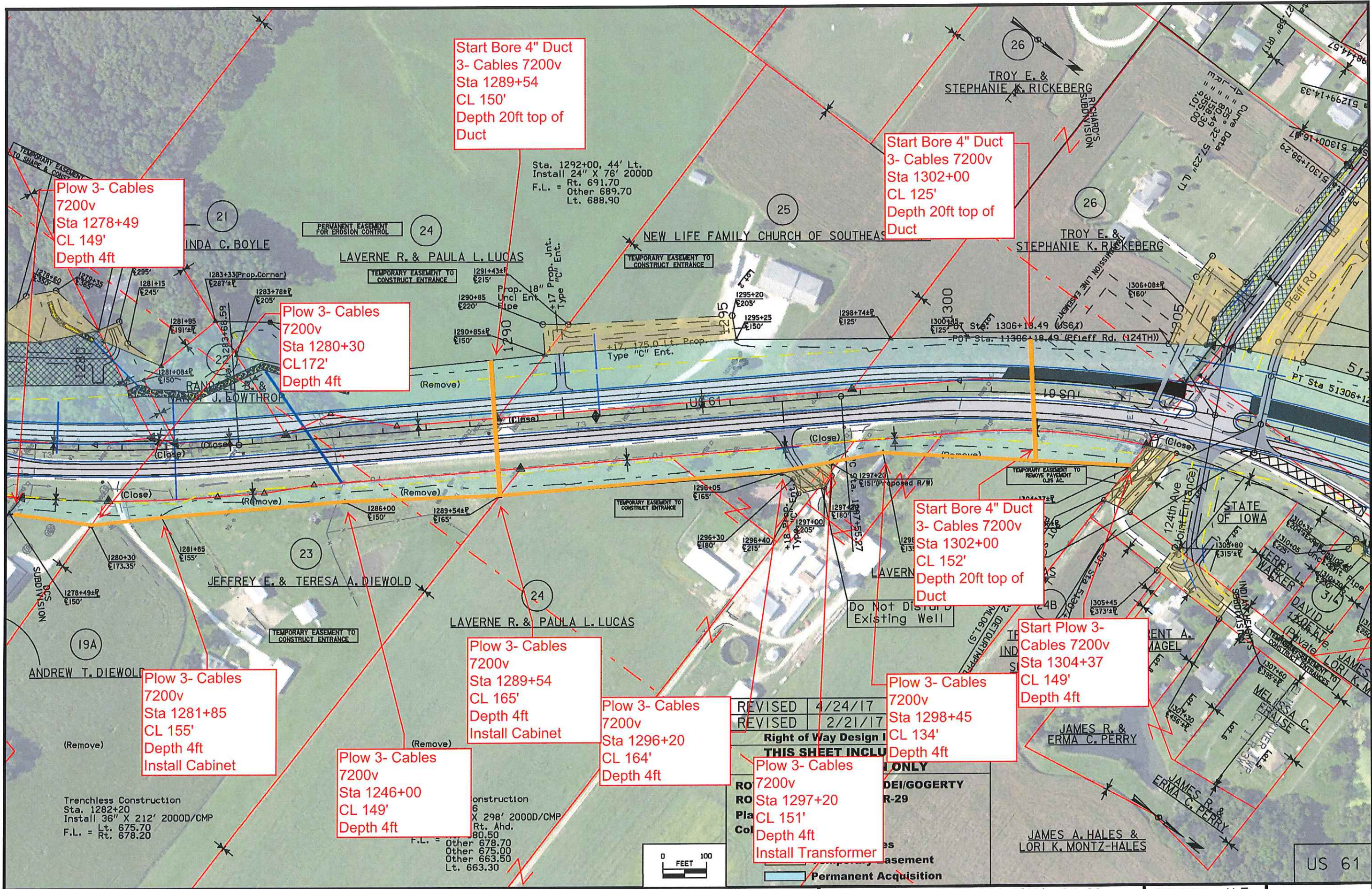
US 61



Bore 2" Duct
Elevation 660
Depth 20ft top of
Duct

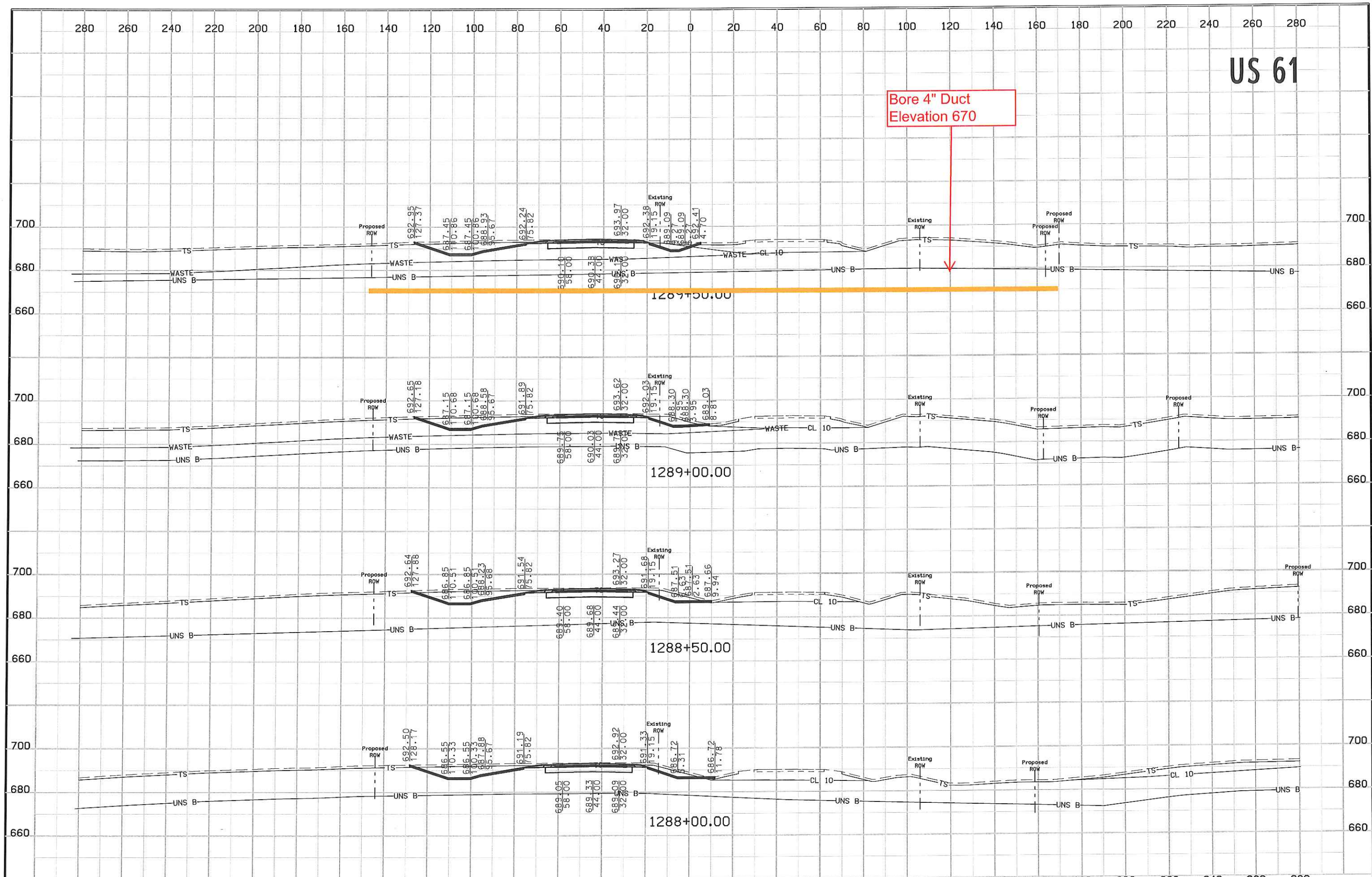
US 61



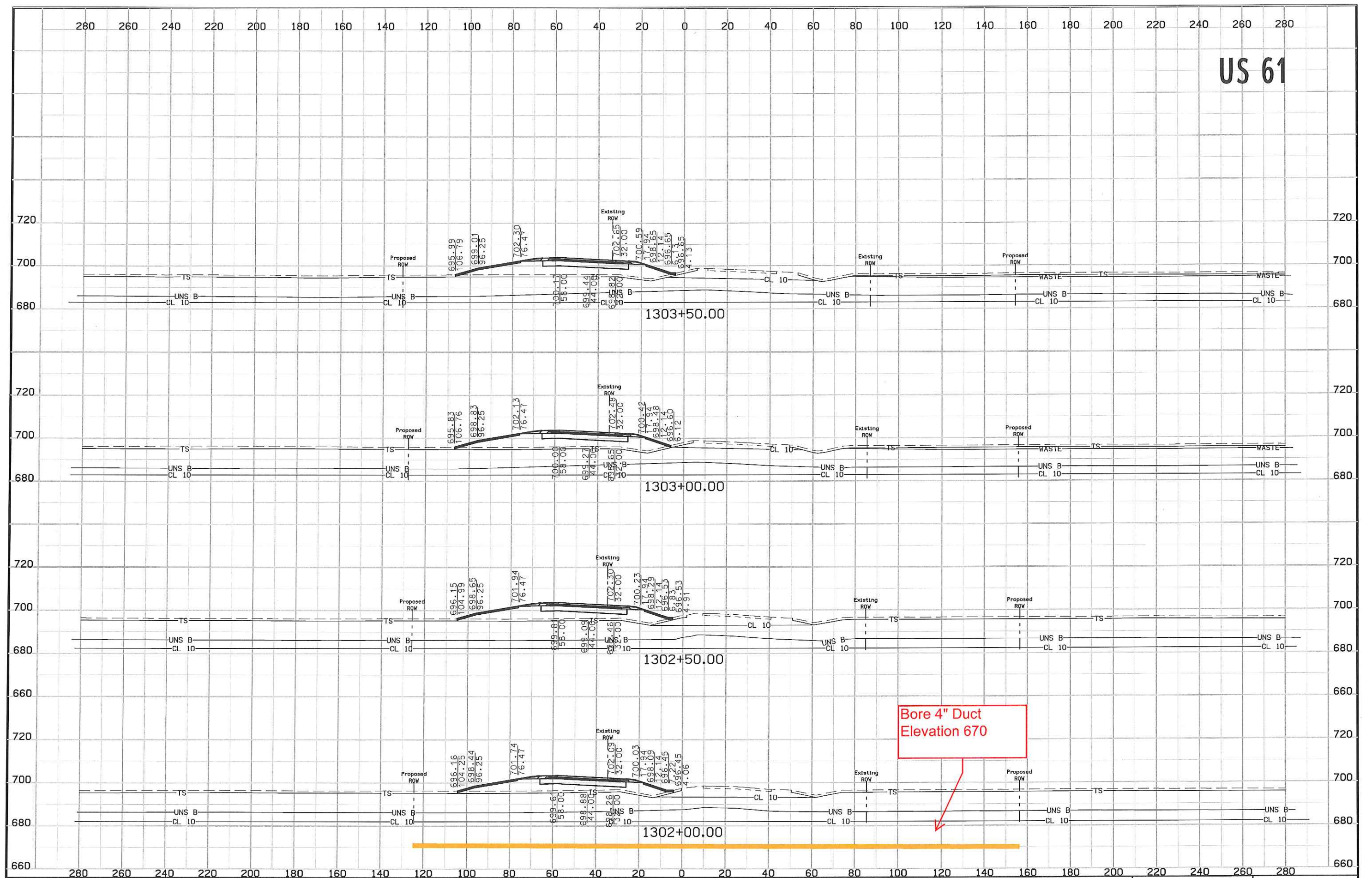


US 61

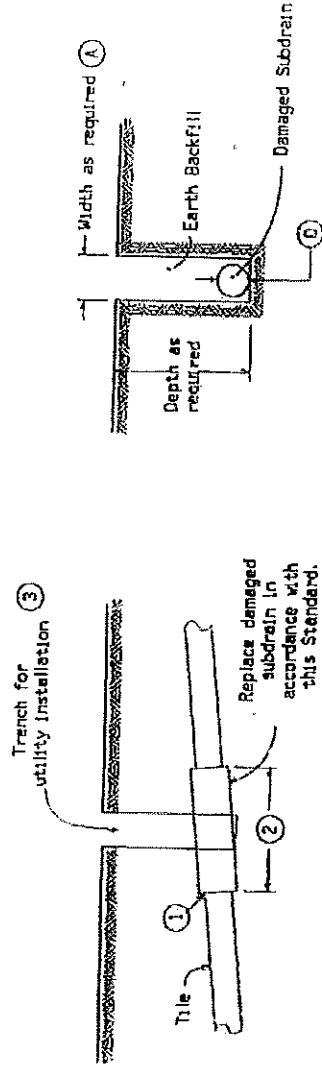
Bore 4" Duct
Elevation 670



US 61



Tile Line Repair Guideline



Note:
Replacement of drainage tile shall be accomplished so as to cause the minimum of disturbance to existing field tile. The repaired drainage tile shall be left in a functional condition with special emphasis placed on maintaining existing flow line elevations.

(A) = A minimum of 24" shall be excavated outside the normal utility trench wall or such greater width as may be required to expose a minimum of 12" of undamaged drain tile.

REPLACEMENT SCHEDULE - CASE 'A'												
Existing Tile (1)	4	6	8	10	12	15	18	21	24	24	24	>24
Proposed Subdrain Size												
Concrete Pipe -				12	15	18	18	21	24	30	D+6"	
Coated C.M.P.	10	12	15	18	21	24	30	36	36		*	

* Replacement sizes provide equivalent capacity based on 6" settlement assuming a 0.207 slope with $n = 0.013$ for concrete pipe and $n = 0.025$ for corrugated pipe (Manning Formula)

NOTES:

Tile lines disturbed within the right-of-way outside the Roadway Embankment Area (*) limits shall be repaired as follows:

May be repaired with schedule 40 PVC pipe of compatible size or in accordance with the replacement schedule-case 'A' as listed above. Replacement with schedule 40 PVC pipe shall require using a connecting device of a Fenco plain and plain flexible pipe coupling or equal.

Tile lines disturbed within the "Roadway Embankment Area" shall be replaced in accordance with the replacement schedule - Case 'A' stated above and as follows:

(1) Concrete collar to be placed around joint where existing tile line and corrugated aluminumized metal pipe connect.

(2) Minimum length of corrugated metal pipe shall be 4 feet. Minimum length of 2 feet on each side of the tile line break location.

(3) Trench shall be backfilled with 8 inches loose material, compacted to 6 inches with a minimum of 95% compaction of natural density.

A. Backfill and compact area around drain tile to be completed by hand until the tile is completely covered. Remainder of the trench shall be backfilled by acceptable methods.

B. Area shall require inspection by the Iowa Department of Transportation inspectors or their designated personnel prior to backfilling of trench.

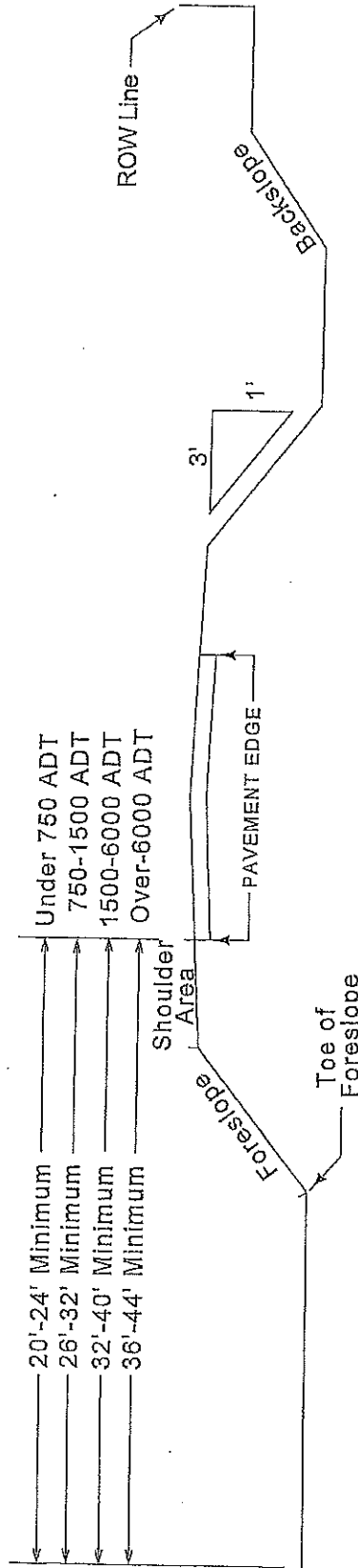
* "Roadway Embankment Area" is defined as the area lying between the foreslopes of a two-lane roadway and from near foreslope to far foreslope of a four lane roadway.

"CLEAR ZONE (in feet)"

Foreslope 3:1 or steeper (DESIGN SPEED 60 MPH)

Traffic Volume, ADT

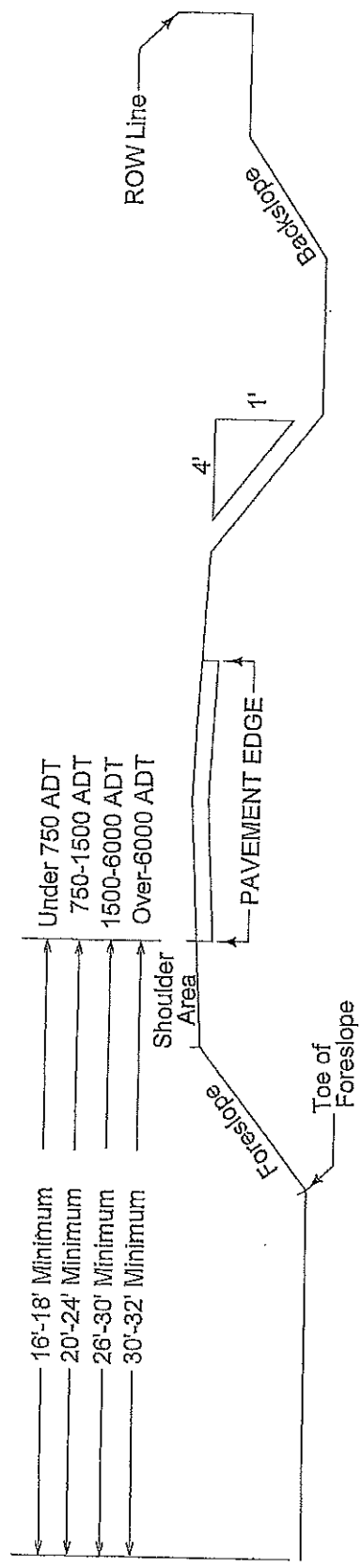
Under 750	750-1500	1500-6000	Over 6000
*16'-18' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*20'-24' beyond the toe of foreslope or 26'-32' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 32'-40' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 36'-44' from edge of traveled way, whichever is greater



* Since recovery is less likely on foreslopes that are 3:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 3:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"
 Foreslope 4:1 or steeper
 (DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
Under 750	Over 6000
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
750-1500	1500-6000
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater



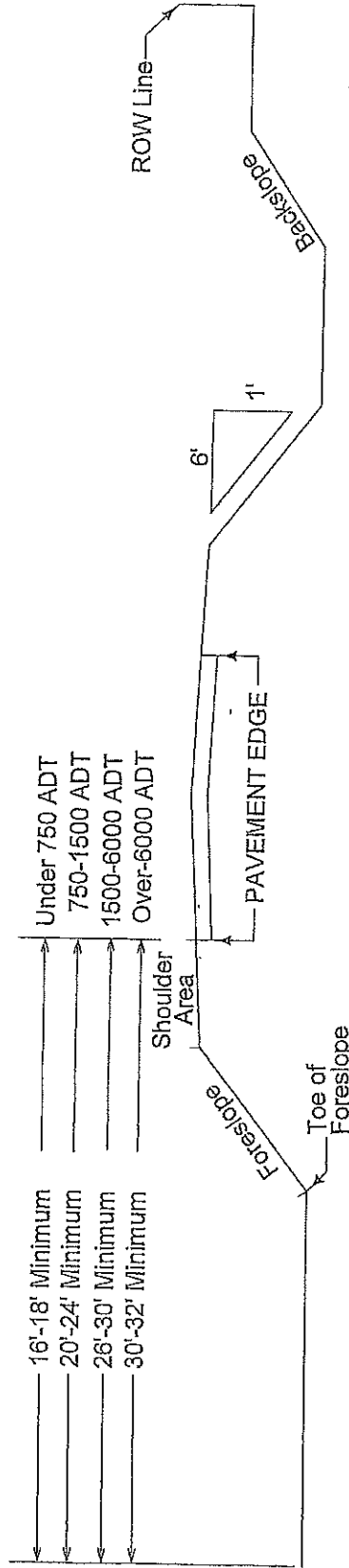
* Since recovery is less likely on foreslopes that are 4:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 4:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"

Foreslope 6:1 or steeper

(DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
Under 750	Over 6000
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
750-1500	1500-6000
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater



* Since recovery is less likely on foreslopes that are 6:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 6:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

Clear-zone Distances for Highways

For freeways, expressways, rural two-lane highways, and transitional facilities, select the design clear-zone distance from the appropriate clear zone table, using the mainline volume. For ramps that are separate from the mainline, use the ramp volume. Ramp tapers and auxiliary lanes are special cases and will be discussed later in this section. Note that since traffic speeds, traffic volumes, horizontal curvature, and roadside geometry can all vary throughout a corridor, clear-zone distances must be determined for each distinct roadway segment.

Preferred Clear-zone Distances (feet).

design speed	design ADT	FORBSLOPES				BACKSLOPES			
		6:1 or flatter	Steeper than 6:1, including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter	6:1 or flatter	6:1 or flatter
40 mph or less	ADT < 750	10	10	**	10	10	**	10	10
	750 ≤ ADT < 1500	12	14	**	12	12	**	12	12
	1500 ≤ ADT < 6000	14	16	**	14	14	**	14	14
	ADT ≥ 6000	16	18	**	16	16	**	16	16
45 – 50 mph	ADT < 750	12	14	**	10	10	**	10	12
	750 ≤ ADT < 1500	16	20	**	12	14	**	14	16
	1500 ≤ ADT < 6000	18	26	**	14	16	**	16	18
	ADT ≥ 6000	22	28	**	16	20	**	20	22
55 mph	ADT < 750	14	18	**	10	12	**	12	12
	750 ≤ ADT < 1500	18	24	**	12	16	**	16	18
	1500 ≤ ADT < 6000	22	30	**	16	18	**	18	22
	ADT ≥ 6000	24	32	**	18	22	**	22	24
60 mph	ADT < 750	18	24	**	12	14	**	14	16
	750 ≤ ADT < 1500	24	32	**	14	18	**	18	22
	1500 ≤ ADT < 6000	30	40	**	18	22	**	22	26
	ADT ≥ 6000	32	44	**	22	26	**	26	28
65 – 70 mph	ADT < 750	20	26	**	12	16	**	16	16
	750 ≤ ADT < 1500	26	36	**	16	20	**	20	22
	1500 ≤ ADT < 6000	32	42	**	20	24	**	24	28
	ADT ≥ 6000	34	46	**	24	30	**	30	30

* Backslopes as steep as 2.5:1 can be considered as part of the clear zone, as long as they are relatively smooth and do not contain any fixed objects. Refer to Section 8A-4 of the Design Manual for information regarding backslopes steeper than 2.5:1.

** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

Acceptable Clear-zone Distances (feet).

design speed	design ADT	FORESTLOPES				BACKSLOPES	
		6:1 or flatter	Steeper than 6:1, up to and including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter
40 mph or less	ADT > 750	7	7	**	7	7	7
	750 ≤ ADT < 1500	10	12	**	10	10	10
	1500 ≤ ADT < 6000	12	14	**	12	12	12
	ADT ≥ 6000	14	16	**	14	14	14
45 – 50 mph	ADT > 750	10	12	**	8	8	10
	750 ≤ ADT < 1500	14	16	**	10	12	14
	1500 ≤ ADT < 6000	16	20	**	12	14	16
	ADT ≥ 6000	20	24	**	14	18	20
55 mph	ADT > 750	12	14	**	8	10	10
	750 ≤ ADT < 1500	16	20	**	10	14	16
	1500 ≤ ADT < 6000	20	24	**	14	16	20
	ADT ≥ 6000	22	26	**	16	20	22
60 mph	ADT > 750	16	20	**	10	12	14
	750 ≤ ADT < 1500	20	26	**	12	16	20
	1500 ≤ ADT < 6000	26	30	**	14	18	24
	ADT ≥ 6000	30	30	**	20	24	26
65 – 70 mph	ADT > 750	18	20	**	10	14	14
	750 ≤ ADT < 1500	24	28	**	12	18	20
	1500 ≤ ADT < 6000	28	30	**	16	22	26
	ADT ≥ 6000	30	30	**	22	26	28

* Backslopes as steep as 2.5:1 can be considered as part of the clear zone, as long as they are relatively smooth and do not contain any fixed objects. Refer to Section 8A-4 of the Design Manual for information regarding backslopes steeper than 2.5:1.

** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

radius (ft.)	40	45	50	55	60	65	70
2860	1.1	1.1	1.1	1.2	1.2	1.2	1.3
2290	1.1	1.1	1.2	1.2	1.2	1.3	1.3
1910	1.1	1.2	1.2	1.2	1.3	1.3	1.4
1640	1.1	1.2	1.2	1.3	1.3	1.4	1.5
1430	1.2	1.2	1.3	1.3	1.4	1.4	
1270	1.2	1.2	1.3	1.3	1.4	1.5	
1150	1.2	1.2	1.3	1.4	1.4	1.5	
950	1.2	1.3	1.3	1.4	1.5	1.5	
820	1.3	1.3	1.4	1.4	1.5		
720	1.3	1.4	1.4	1.5			
640	1.3	1.4	1.5				
570	1.4	1.5					
380	1.5						

K_{cz} (curve correction factor)

Table 2: Horizontal curve adjustments.

zone distance on the tangent K_{cz} = curve correction factor

where: CZ_c = adjusted design clear-zone distance at curve (rounded to nearest foot) CZ_t = design clear-

$$\times =$$

zone distance when widening at horizontal curves:

tangent more than one mile in length). Use the following equation to determine the adjusted clear-

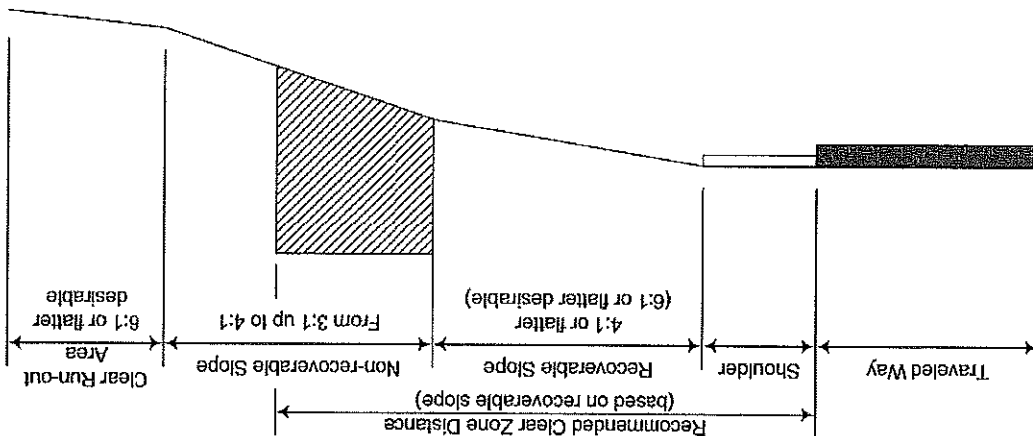
- the design speed of the roadway is 55 mph or greater
- the radius of the curve is 2860 feet or less
- the curve occurs on a normally tangent alignment (one where the curve is preceded by a

criteria are met:

The design clear-zone distance should be adjusted at certain horizontal curves. Adjust the width of the clear zone at a curve when an accident history suggests the need for additional width or when all of the following

Adjustment at Horizontal Curves

Figure 4: [PRELIMINARY] Recovery area provided at the toe of steep slopes.



As Figure 5 shows, the clear zone should be adjusted only on the outside of the first curve following the tangent. If the alignment is generally curvilinear, no adjustment factor should be applied. Similarly, if the alignment is curvilinear preceding the curve in question, then no adjustment factor should be applied.

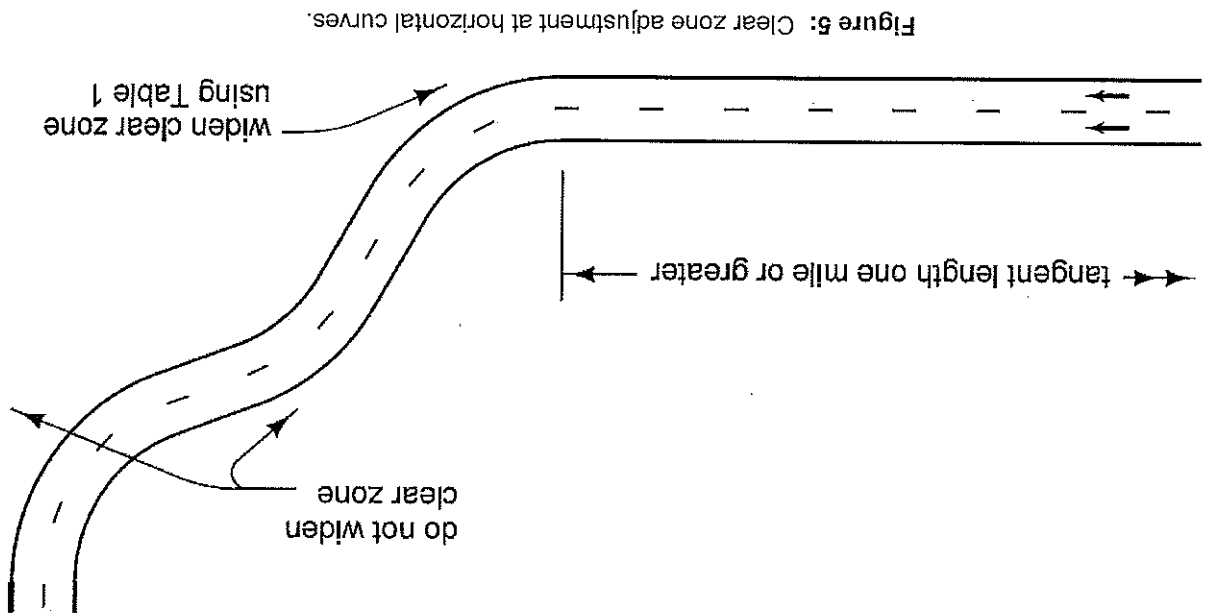


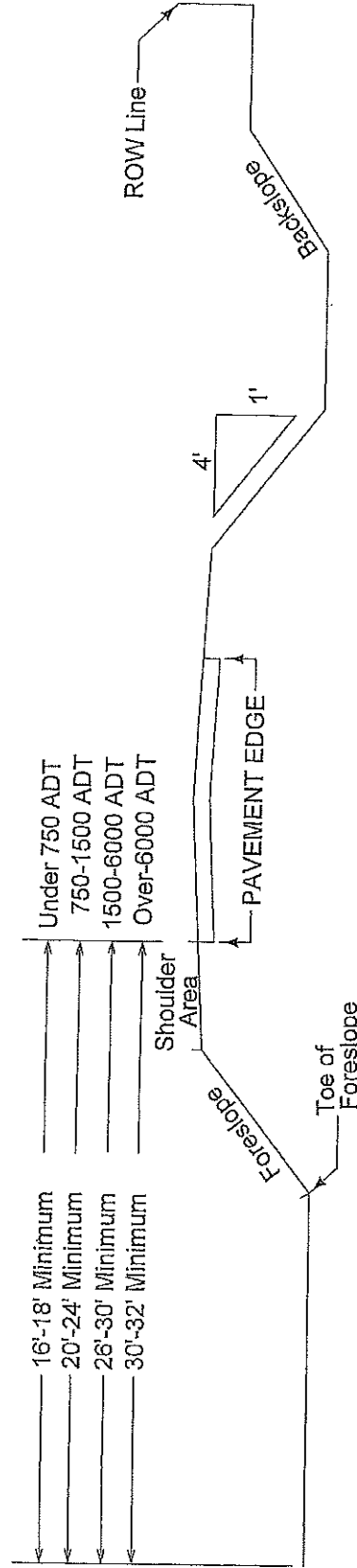
Figure 5: Clear zone adjustment at horizontal curves.

"CLEAR ZONE (in feet)"

Foreslope 4:1 or steeper

(DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
<u>Under 750</u>	<u>Over 6000</u>
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
<u>750-1500</u>	<u>1500-6000</u>
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater

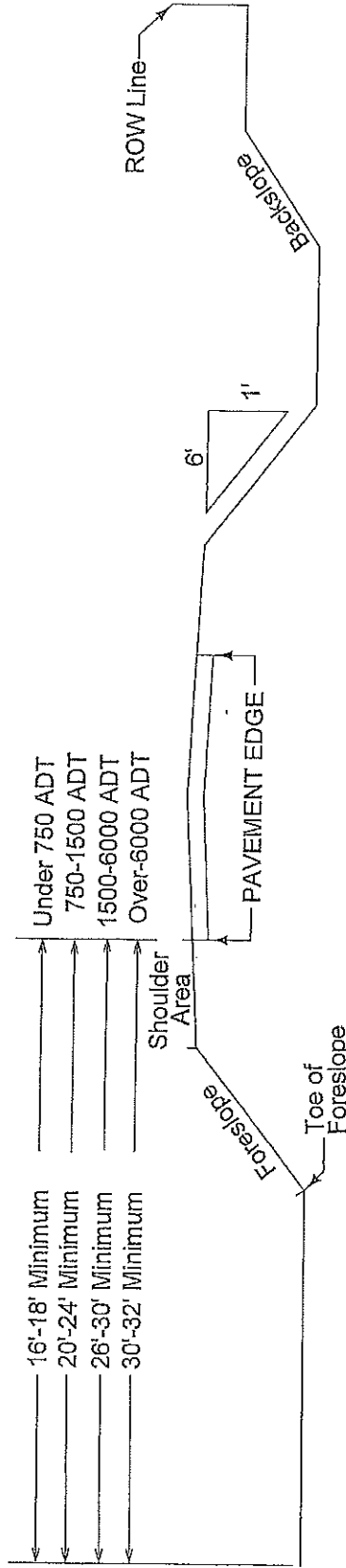


* Since recovery is less likely on foreslopes that are 4:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 4:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"

Foreslope 6:1 or steeper (DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
Under 750	Over 6000
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
750-1500	1500-6000
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater



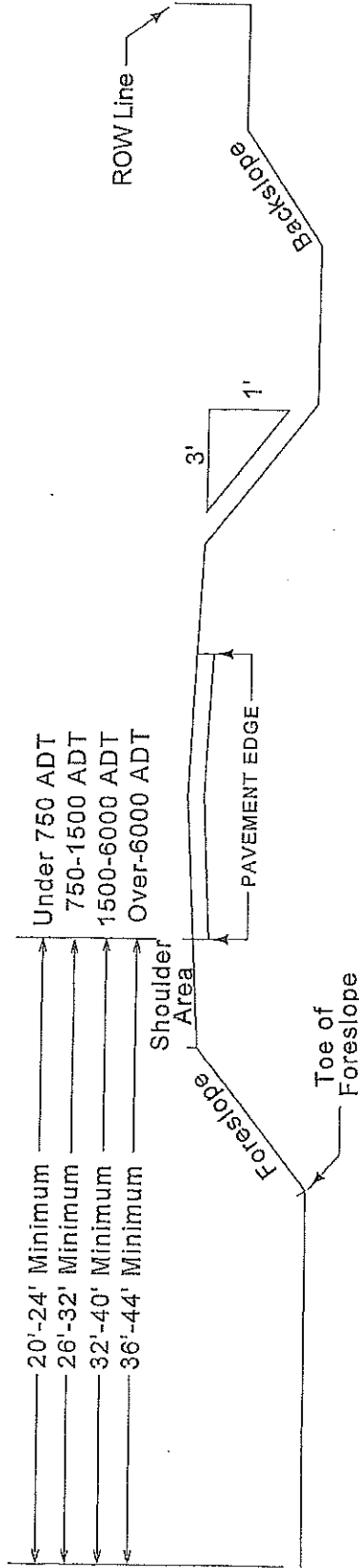
* Since recovery is less likely on foreslopes that are 6:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 6:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"

Foreslope 3:1 or steeper

(DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
Under 750	Over 6000
*16'-18' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 36'-44' from edge of traveled way, whichever is greater
750-1500	1500-6000
*20'-24' beyond the toe of foreslope or 26'-32' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 32'-40' from edge of traveled way, whichever is greater
Under 750 ADT	750-1500 ADT
20'-24' Minimum	26'-32' Minimum
26'-32' Minimum	32'-40' Minimum
32'-40' Minimum	36'-44' Minimum
36'-44' Minimum	

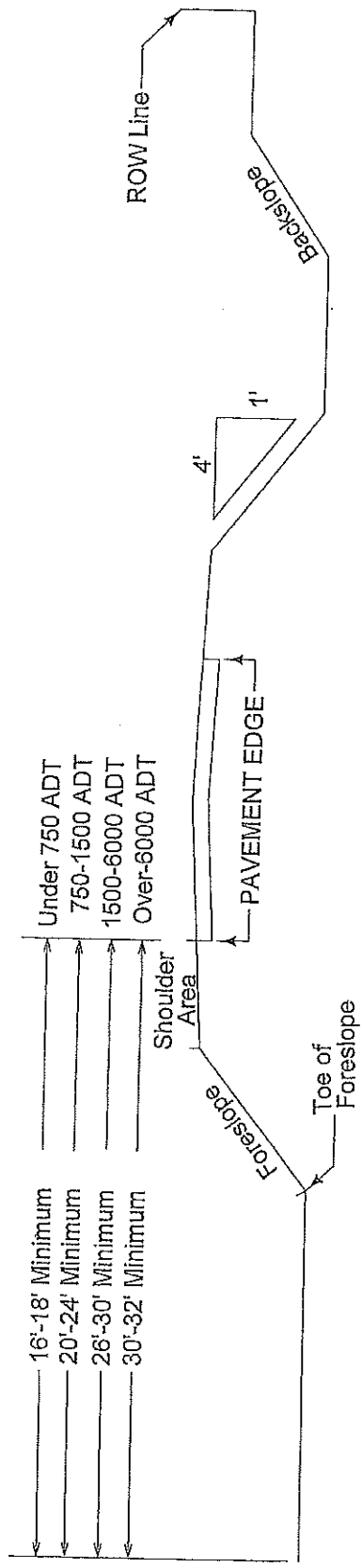


* Since recovery is less likely on foreslopes that are 3:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 3:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"

Foreslope 4:1 or steeper (DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
<u>Under 750</u>	<u>Over 6000</u>
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
<u>750-1500</u>	<u>1500-6000</u>
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater



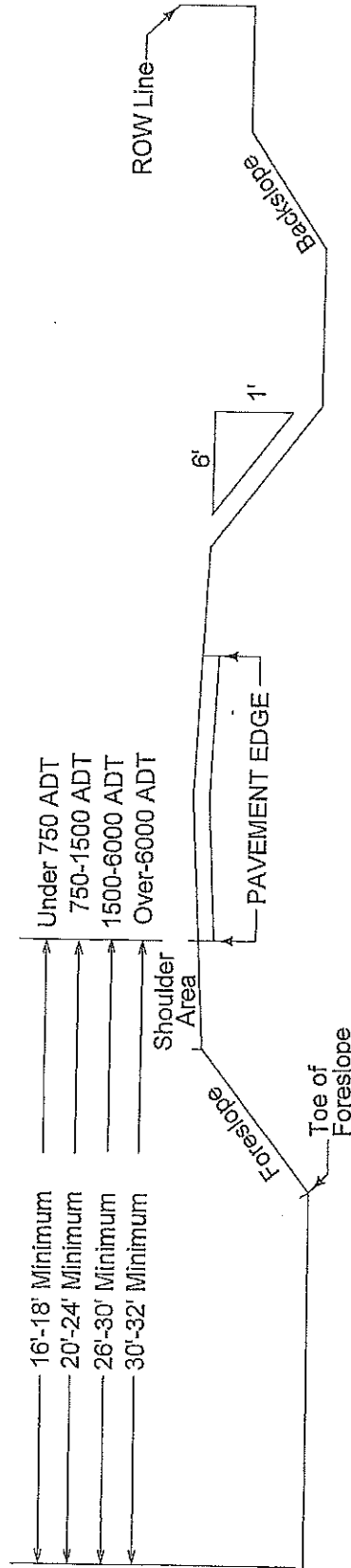
* Since recovery is less likely on foreslopes that are 4:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 4:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.

"CLEAR ZONE (in feet)"

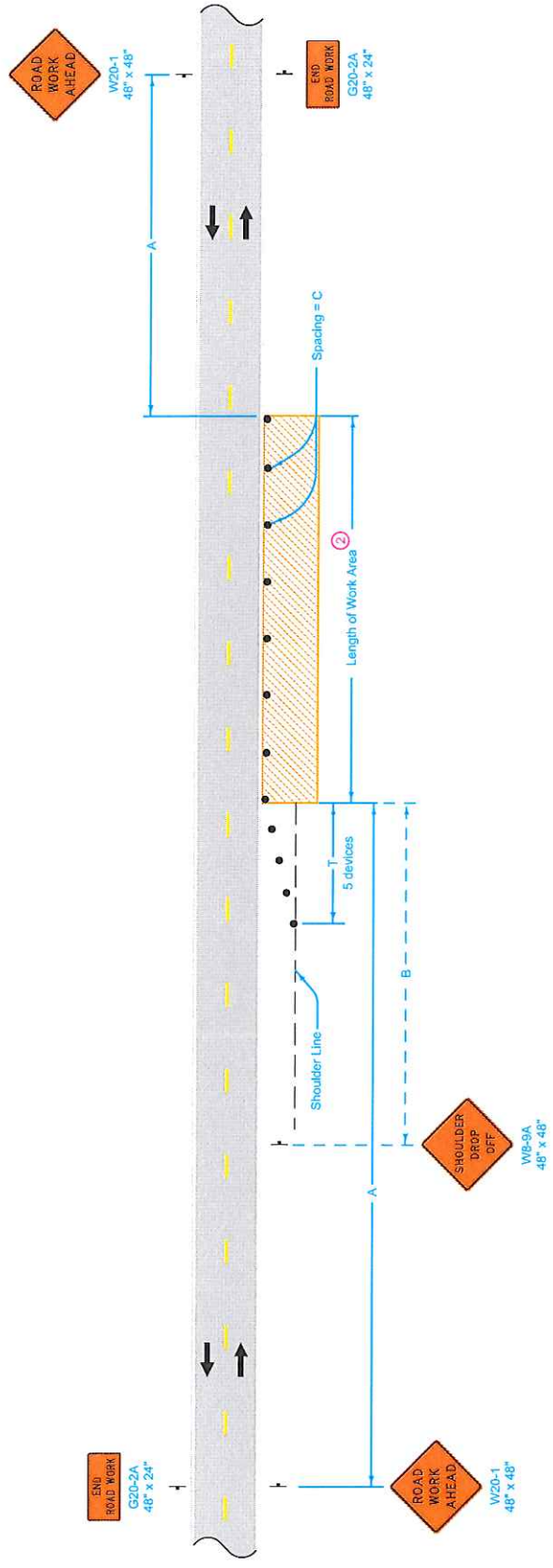
Foreslope 6:1 or steeper

(DESIGN SPEED 60 MPH)

Traffic Volume, ADT	
<u>Under 750</u>	<u>Over 6000</u>
*16'-18' beyond the toe of foreslope or 16'-18' from edge of traveled way, whichever is greater	*30'-32' beyond the toe of foreslope or 30'-32' from edge of traveled way, whichever is greater
<u>750-1500</u>	<u>1500-6000</u>
*20'-24' beyond the toe of foreslope or 20'-24' from edge of traveled way, whichever is greater	*26'-30' beyond the toe of foreslope or 26'-30' from edge of traveled way, whichever is greater



* Since recovery is less likely on foreslopes that are 6:1 or steeper, fixed objects should not be present in the vicinity of the toe of these slopes. Recovery of errant vehicles may be expected to occur beyond the toe of the slope. Determination of the width of the recovery area at the toe of a slope that is 6:1 or steeper should take into consideration right-of-way availability, environmental concerns, economic factors, safety needs and accident histories. The distance beyond the toe of foreslope may be reduced by the width of the existing shoulder.



Possible Contract Item:
Traffic Control

	REVISION	04-21-15
	8	
TC-202		
STANDARD ROAD PLAN		
<small>REVISIONS: Modified general notes, changed fills and replaced the DOT logo in the title block with the new version.</small>		
<small>APPROVED BY DESIGN METHODSE ENGINEER</small> 		
WORK WITHIN 15 FT OF TRAVELED WAY		

When a pavement edge drop-off exists, install a **SHOULDER DROP-OFF** sign.

No pavement drop-offs greater than pavement depth will be allowed during non-working hours.

Shoulder edge drop-offs shall be mitigated according to Article 1107.06.L2 of the Standard Specifications.

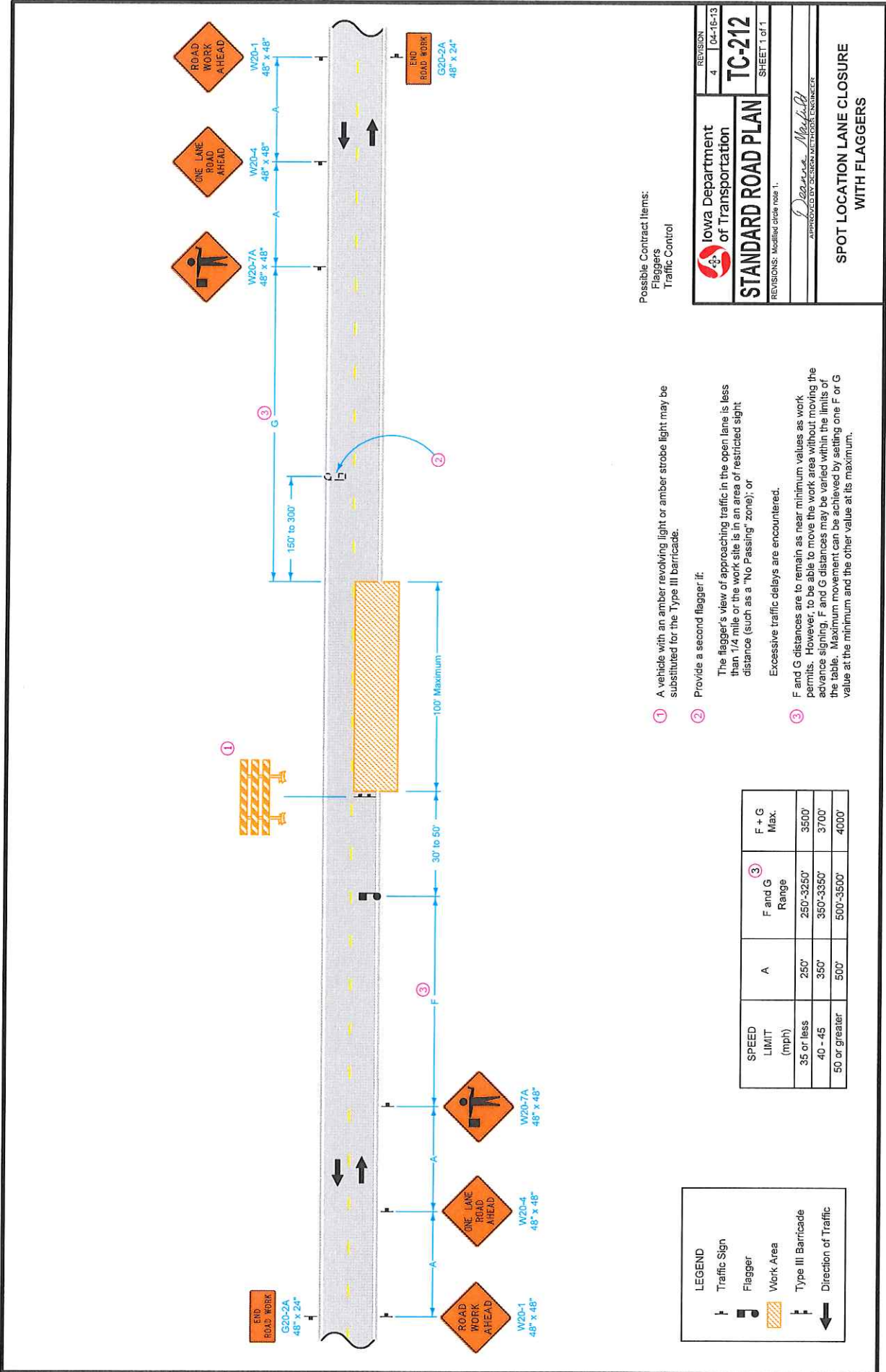
For work lasting less than one hour, refer to TC-1.

- ① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fill requirement of Article 1107.06 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.
- ② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

SPEED LIMIT (mph)	A	B	C	T
35 or less	500'	250'	40'	100'
40 - 45	700'	350'	80'	200'
50 or greater	1000'	500'	100' ①	200'

LEGEND

- † Traffic Sign
- 42" Channelizer
- Work Area
- Direction of Traffic



Possible Contract Items:
 Flaggers
 Traffic Control

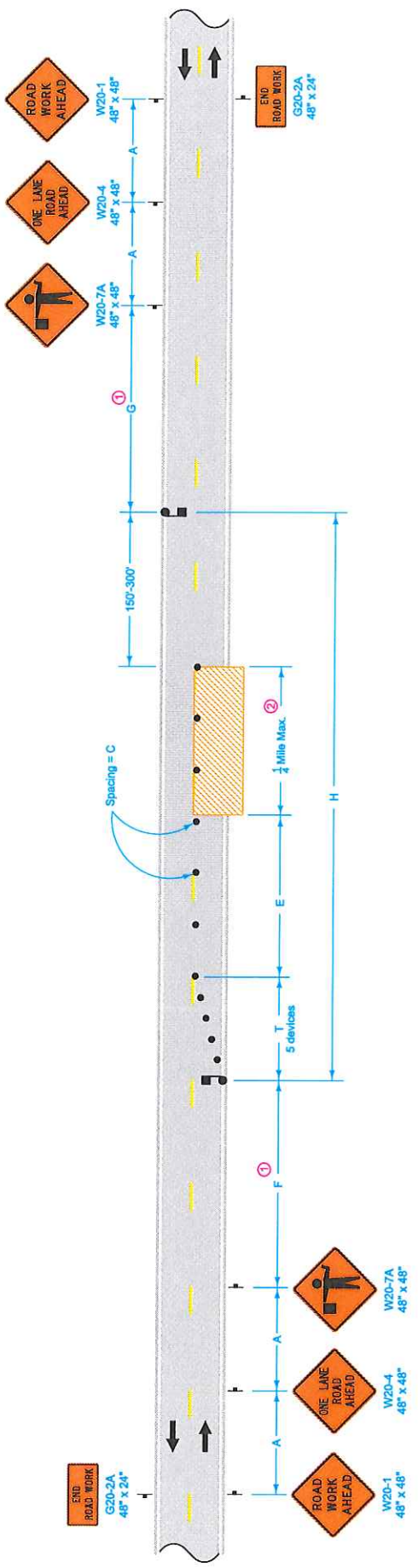
 Iowa Department of Transportation STANDARD ROAD PLAN	REVISION 4 04-16-13
	TC-212 SHEET 1 of 1
REVISIONS: Modified circle role 1. <i>J. Deane, M. Kelly</i> APPROVED BY DESIGN METHOD ENGINEER	
SPOT LOCATION LANE CLOSURE WITH FLAGGERS	

- ① A vehicle with an amber revolving light or amber strobe light may be substituted for the Type III barricade.
- ② Provide a second flagger if:
 - ③ The flagger's view of approaching traffic in the open lane is less than 1/4 mile or the work site is in an area of restricted sight distance (such as a "No Passing" zone); or
 - Excessive traffic delays are encountered.
- ③ F and G distances are to remain as near minimum values as work permits. However, to be able to move the work area without moving the advance signing, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.

SPEED LIMIT (mph)	A	F and G Range	F + G Max.
35 or less	250'	250'-3250'	3500'
40 - 45	350'	350'-3350'	3700'
50 or greater	500'	500'-3500'	4000'

LEGEND

- Traffic Sign
- Flagger
- Work Area
- Type III Barricade
- Direction of Traffic



Possible Contract Items:
 Flaggers
 Traffic Control

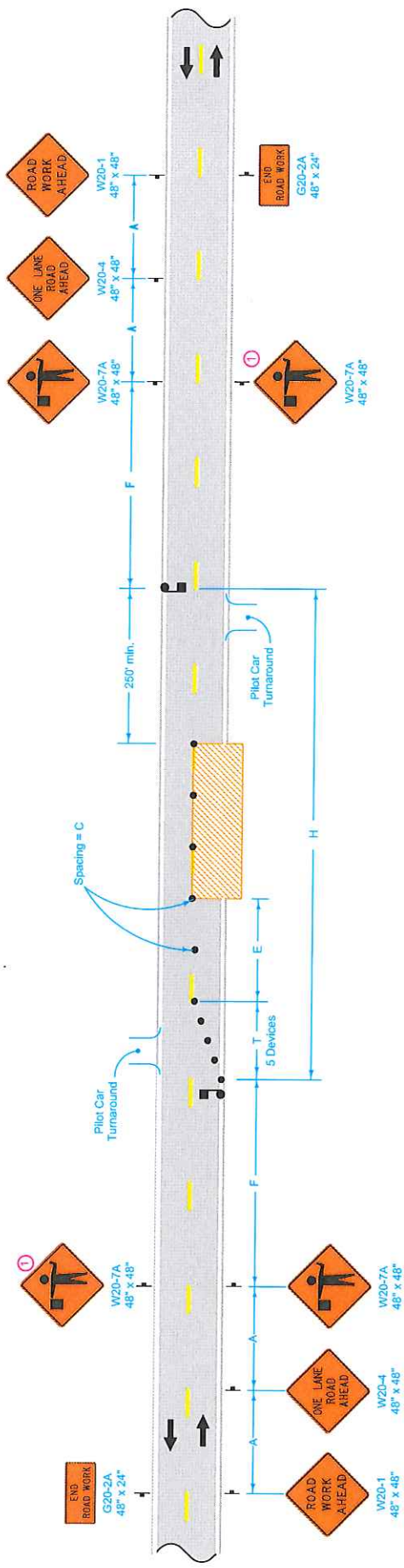
 Iowa Department of Transportation	REVISION	3	04-17-12
	TC-213		
STANDARD ROAD PLAN			SHEET 1 OF 1
<small>REVISIONS: Removed "or Vertical Panel" from 42" Channelizer in Legend.</small>			
<small>APPROVED BY DESIGN METHOD ENGINEER</small> <i>Deanna M. H. H.</i>			
LANE CLOSURE WITH FLAGGERS			

- ① Keep F and G distances as near to minimum values as work permits. However, to allow advancement of the work area without moving signs, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.
- ② If length of work area exceeds 1/4 mile, use TC-214.

SPEED LIMIT (mph)	A	C	E	F and G Range	F + G Max.	H Max.	T
35 or less	250'	40'	0'-200'	500'-3000'	3500'	2000'	50'
40 - 45	350'	80'	0'-200'	700'-3000'	3700'	2000'	100'
50 or greater	500'	100'	200'-300'	1000'-3000'	4000'	2000'	100'

LEGEND

- Traffic Sign
- Flagger
- 42" Channelizer
- Work Area
- Direction of Traffic



Possible Contract Items:
 Flagger
 Pilot Car
 Traffic Control

 Iowa Department of Transportation	REVISION 5 04-16-13
	TC-214 STANDARD ROAD PLAN <small>REVISIONS: Modified W20-7A sign changed the centerline device spacing from 100' to 150' in column C of the table.</small>
SHEET 1 of 1 <small>APPROVED BY DESIGN METHOD ENGINEER</small> <i>Deanna M. Smith</i>	
LANE CLOSURE WITH FLAGGERS FOR USE WITH PILOT CAR	

- ① Sign optional for ADT less than 5,000.
- ② In rural areas, as work activity nears the downstream limits of dimension H, the lane closure may be extended up to 1.0 mile beyond the maximum distance, H, shown in the table. After the traffic control devices have been placed to extend the closure and after work activity has progressed, the advanced signing and devices at the beginning of the traffic control zone should be moved downstream so that the H distance is once again within the limits shown in the table. This one-mile extension will not be allowed during any peak traffic hours listed in the contract documents.

SPEED LIMIT (mph)	ADT	A	C	E	F	H max.	T
35 or less	up to 2,500	250'	40'	0'-200'	500'	2.5 mi.	50'
	2,500 - 5,000	250'	40'	0'-200'	500'	2.0 mi.	50'
40 - 45	more than 5,000	500'	40'	0'-200'	1000'	1.5 mi.	50'
	up to 2,500	350'	80'	0'-200'	700'	2.5 mi.	100'
	2,500 - 5,000	350'	80'	0'-200'	700'	2.0 mi.	100'
50 or greater	more than 5,000	700'	80'	0'-200'	1400'	1.5 mi.	100'
	up to 2,500	500'	160'	200'-300'	1000'	2.5 mi.	100'
	2,500 - 5,000	500'	160'	200'-300'	1000'	2.0 mi.	100'
	more than 5,000	1000'	160'	200'-300'	2000'	1.5 mi.	100'

LEGEND

- Traffic Sign
- Flagger
- 42" Channelizer
- Work Area
- Direction of Traffic

Notification of width or height restrictions on Iowa primary highways – Utility Requirements

To: Utility companies

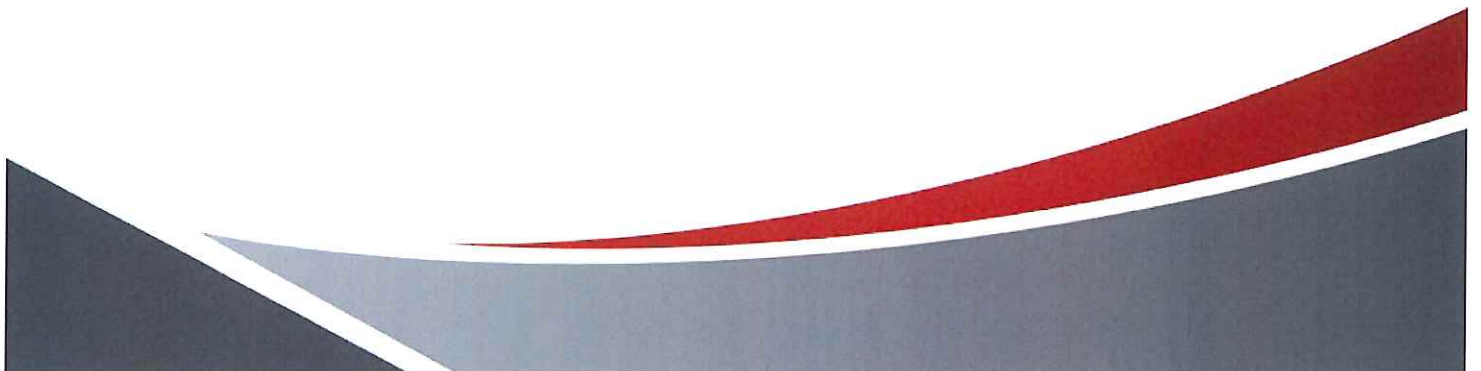
Subject: Notification of width or height restrictions on Iowa primary highways

Date: February 17, 2014

In accordance with the stipulations on all Utility Accommodation permits, utilities may not obstruct or close primary highways without prior consent of the Iowa DOT, except in emergency situations. The permit holder must notify the DOT 48 hours in advance of its intention to start construction or perform routine maintenance on the highway right-of way. The purpose of this note is to remind you of these requirements and provide guidance on how to give proper notice and information to the Iowa DOT.

Even short term partial closures can have a significant impact on the operation of highway system. The Iowa DOT is working hard to improve the accuracy of the information provided by the Iowa 511 traveler information system, (<http://511ia.org/>) but we need your help. Besides providing real-time information to the traveling public, this system is also used by the Iowa DOT to route oversize loads. Having accurate information on the location, extent and duration of lane restrictions is critical for their routing processes.

Before setting up a lane closure or any vertical/horizontal restriction on a primary highway, call your local Iowa DOT maintenance garage, as shown on the Iowa DOT Districts web page, <http://www.iowadot.gov/districtshome.html> to discuss timing and date of the closure/restriction. Once the maintenance garage concurs with the timing and date, it is your responsibility to call the Iowa DOT Traffic Operations Center (TOC) at (515-239-1440). The TOC will add the information to the 511.



system, which generates an automatic message to Iowa DOT Motor Carrier Services (MCS) and the District office.

This notification does not replace the need for a permit application. Permits are required for utility accommodation and for any and all work on right of way, except emergency work.

Except in emergency situations, 48 hour advance notice is the minimum required. The preference is for a 10 day notice as permits for oversize loads are issued up to 10 days in advance. If a 10 day notice is not possible, MCS will have to check for permitted loads on those routes for possible conflicts and work with the permit holders and DOT Maintenance office to resolve the conflicts. In emergency situations, notification should be provided as soon as possible.

When providing notice to the Iowa DOT, you will need to supply detailed information about the restriction. It is advised you have this information (last 2 pages) when you call the TOC. The same detailed information to be provided is also listed at:

http://www.iowadot.gov/local_systems/mailling/2014/january/511_information_form.pdf.

If you have any questions, **please do not reply to this note**. Instead, you may contact either your local Iowa DOT maintenance garage or the TOC.

Thank you in advance for your cooperation.

Sincerely,



Bryan Bradley
State Utility Engineer
515-239-1014
bryan.bradley@iowa.gov
Iowa Department of Transportation

511 Information Required

Before setting up a lane closure or a vertical/horizontal restriction of any kind on a primary highway extension, call your local Iowa DOT maintenance garage to discuss timing and date of the closure/restriction. Once the maintenance garage concurs with the timing and date, call the Iowa DOT Traffic Operations Center (TOC) at **515-239-1440**. The TOC will put the information in the 511 system, which generates an automatic message to Iowa DOT Motor Carrier Services (MCS) and the District office.

The following information is required to enter a maintenance/construction event into the Iowa DOT 511 system.

Requestor: _____ Contact number: _____

Route(s) affected:

Project description:

Project begin location (detailed description including cross streets and mile markers):

Project end location (detailed description including cross streets and mile markers):

County/Countries:

24 hour project contact:

Name _____ Phone _____

Describe the impact on traffic:

- | | |
|--|--|
| <input type="checkbox"/> Closed | <input type="checkbox"/> Right lane closed |
| <input type="checkbox"/> Closed intermittently | <input type="checkbox"/> Left lane closed |
| <input type="checkbox"/> Intermittent lane closure | <input type="checkbox"/> Center lane closed |
| <input type="checkbox"/> Alternating lane closures | <input type="checkbox"/> Right shoulder closed |
| <input type="checkbox"/> Reduced to one lane | <input type="checkbox"/> Left Shoulder closed |
| <input type="checkbox"/> Reduced to two lanes | <input type="checkbox"/> Exit ramp closed |
| <input type="checkbox"/> Reduced to three lanes | <input type="checkbox"/> Entrance ramp closed |

- Two center lanes are closed
- Left exit ramp closed
- Shoulder closed
- Bridge closed
- Intersecting road closed
- Local road closures in area
- Left lane of exit ramp closed

- Road construction
- Work in the median
- Opposing traffic
- Single lane traffic alternating directions

Additional project information (pilot car, flagger, etc.):

Will there be temporary overhead signals? (15' standard height restriction)

- Yes No

If yes, please provide the location of the temporary overhead signals in the space provided.

Are there any other width or height restrictions:

- Yes No

If yes, please describe:

Additional public website comments:

Project beginning date and time:

Project ending date and time:

Times of closure

- Continuous Weekdays (Monday – Friday) Nights

Times of closure:
