



Wisconsin Department of Transportation

Division of Transportation Systems Development

Bureau of Project Development
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December 5, 2017

NOTICE TO ALL CONTRACTORS:

Proposal #01: 4650-08-71, WISC 2017 623
City of Kaukauna, Delanglade Street
Lawe Street – IH 41
STH 55
Outagamie County

Letting of December 12, 2017

This is Addendum No. 02, which provides for the following:

Special Provisions:

Revised Special Provisions	
Article No.	Description
6	Utilities

Added Special Provisions	
Article No.	Description
84	Notice to Contractor – Wisconsin Central Ltd Railroad Utility Crossing Permit Requirements

The responsibility for notifying potential subcontractors and suppliers of these changes remains with the prime contractor.

Sincerely,

Mike Coleman

Proposal Development Specialist
Proposal Management Section

ADDENDUM NO. 02

4650-08-71

December 5, 2017

Special Provisions

6. Utilities.

*Replace entire section titled **Kaukauna Utilities (Electric)** with the following:*

Kaukauna Utilities (Electric). Kaukauna Utilities has existing overhead electric facilities throughout the project limits. Existing overhead lines will be reconstructed to underground electric prior to construction and tie back into existing overhead facilities on all sideroads at the first existing pole not in conflict with the proposed construction. Existing Kaukauna Utilities poles will be removed as soon as other utilities accommodated on the poles have completed relocations. All poles and guy wires in conflict with construction will be removed by May 4, 2018. The contractor may need to work around existing poles within the limits of construction until removal has been completed.

The new underground electric route will be as follows:

- Crossing STH 55 (Lawe Street) at approximate Sta. 208+10.
- Behind the west curb of STH 55 (Delanglade Street) from Sta. 210+70 to Sta. 215+80 tying to the existing overhead crossings at Oviatt Street and Desnoyer Street.
- Behind the west sidewalk/trail of STH 55 (Delanglade Street) from Sta. 219+00 to Sta. 251+50, crossings CTH OO at Sta. 17+50, crossing Gertrude Street at Sta. 34+00 and crossings of STH 55 at stations 220+75, 224+10, 231+30, 233+95, 247+50 and 251+65.
- Along the north side of CTH OO from STH 55 to intercept existing overhead lines at Sta. 21+50.
- Along the south side of Badger Road from STH 55 to intercept existing overhead lines at Sta. 51+20.
- Crossing Badger Road at Sta. 51+75.
- Along the north terrace of Gertrude Street from STH 55 to beyond the west project limits.
- Along the south right-of-way of Maloney Road from STH 55 to intercept a new pole at Sta. 37+75.
- Crossing under IH 41, northbound off ramp and southbound on ramp at Sta. 1114+00.
- Along the north right-of-way line of the southbound on-ramp from Sta. 1114+00 to the west right-of-way line of STH 55, and along the west right-of-way of STH 55 from the southbound on-ramp to Sta. 267+00.
- Crossing STH 55 at Sta. 267+00.

Overhead lines will be constructed at the following locations:

- Across the railroad tracks at Sta. 220+00.
- Across STH 55 at Sta. 220+75.
- Along the north side of CTH OO from the west project limits to Sta. 17+00 and from Sta. 22+65 to the east project limits.
- Along the south side of Badger Road from Sta. 51+25 to the east project limits.
- Along the south side of Maloney Road from Sta. 37+75 to the east project limits.

During construction, Kaukauna Utilities Electric will:

- Install service lines to the traffic signal controller at the STH 55/STH 96/CTH J intersection and the street light cabinets at the IH 41 ramps after grading is complete and prior to pavement

construction. Notify Kaukauna Utilities Electric prior to paving operations and a minimum of 2 weeks in advance of needing each service line installed. The work is anticipated to take 2 working days for each service line installation.

- Hold poles as necessary for grading and sewer installations, including removing and resetting guy anchors that interfere with construction. Provide a minimum of 5 working days notification to Kaukauna Utilities prior to needing a pole hold. Pole holds are anticipated to be necessary at the following locations: Sta. 207'NB'+46 Lawe Street, 140' right; and Sta. 22'WB'+65 CTH OO, 35' left.

Coordinate all construction operations with Kaukauna Utilities Electric to allow for installation of service and lighting conduits after grading operations and prior to paving operation and installation of street lights after paving operations.

*Replace entire section titled **Charter Communications (communication line)** with the following:*

Charter Communications (communication line). Charter Communications has overhead and underground facilities within the project limits. Existing overhead lines will be reconstructed to underground lines prior to construction in a joint installation with Kaukauna Utilities Electric and tie back into existing overhead facilities on all side roads at the first existing pole not in conflict with the proposed construction. Charter Communications will also install additional underground facilities that are not joint with Kaukauna Utilities Electric. The underground communications cable route will be installed prior to construction as follows:

- Along the north right-of-way line of STH 55 (Lawe Street) from west of the construction limits to STH 55 (Delanglade Street).
- Behind the west curb of STH 55 (Delanglade Street) to Sta. 219+00 with a crossing of STH 55 at approximate Sta. 210+35.
- Behind the west sidewalk/trail of STH 55 (Delanglade Street) from Sta. 219+00 to Sta. 247+00 with crossings of CTH OO at Station 17+60 and crossings of STH 55 at the intersection of Oviatt Street and Desnoyer Street, stations 220+75, 224+10, 233+95, 237+15, and 247+20.
- Along the north side of CTH J to intercept a pole at station 10+00.
- Along the north side of Oviatt Street west of STH 55 to a pole at Sta. 10+30 and along the south side of Oviatt Street east of STH 55 to a pole east of the construction limits.
- Along the north side of Desnoyer to a pole at Sta. 21+70.
- Along the north side of CTH OO from STH 55 to a pedestal at Sta. 22+60, left.
- Along the south side of Badger Road from STH 55 to a pole at Sta. 51+20.
- Along the south right-of-way of Maloney Road from STH 55 to a new pole at Sta. 38+50.
- Crossing Maloney Road at Sta. 38+50.
- Along the north right-of-way line of Maloney Road from STH 55 to a pedestal at Sta. 39+75.
- Along the east side of STH 55 from Maloney Road to intercept existing facilities at Sta. 250+75.

During construction Charter Communications will:

- Expose and adjust the existing cable between inlet 140.1 and endwall 140 on STH 55 at Sta. 252+00 right (joint with AT&T).
- Adjust existing pedestal on STH 55 at Sta. 252+90 right.
- Expose and adjust the existing cable between manhole 110 and inlet 110.3 and the existing cable between inlet 105.4 and inlet 105.5 at the southbound ramps roundabout (joint with AT&T).
- Expose and adjust the existing conduits along STH 55 northbound from Sta. 263+00 2' left to Sta. 264+25 20' right (joint with AT&T).
- Remove existing pedestal at 262+25, right, and install an at grade vault at/near 262+57, 24' left.
- Relocate and adjust existing hand hole at Station 247+10 left to a location behind proposed trail after rough grading operations are complete.

Charter Communications anticipates needing one working day to complete the adjustments at each location.

Provide a minimum of 5 working days notification to Charter Communications prior to beginning work in each area so adjustments can be completed concurrently with roadway construction operations.

*Replace entire section titled **AT&T Wisconsin (communication line)** with the following:*

AT&T Wisconsin (communication line). AT&T Wisconsin has overhead and underground facilities within the project limits. Existing overhead lines along the west side of STH 55 (Delanglade Street) between STH 55 (Lawe Street) and CTH OO will be reconstructed to underground lines prior to construction in a joint installation with Kaukauna Utilities Electric.

Prior to construction AT&T Wisconsin will:

- Install an underground fiber optic cable along the south STH 96 right of way from Sta. 310+55 to Sta. 312+87 to an existing pole. The existing fiber optic cable in this area under the existing sidewalk on the south side of STH 96 will be discontinued in place and the existing pole at Sta. 311+90, right, will be removed.
- Install an underground duct package behind the west STH 55 curb from Sta. 210+74 to Sta. 220+25. Pedestals will be placed in the terrace at approximate stations 210+74, 211+90, 213+00, and 217+26. Pedestals will be placed behind the proposed walk at approximate stations 219+34 and 220+25. All aerial cable and poles removed.
- Install an underground duct package along the right-of-way vision corner in the southwest quadrant of the STH 55/CTH OO intersection, to a crossing of CTH OO at Sta. 17+00, to a crossing of STH 55 at Sta. 225+25 to 3' off the easterly right-of-way of STH 55 at approximate Sta. 225+25. The duct package will then be installed along the north right-of-way line of CTH OO to an existing pedestal at approximate Sta. 22+65, left.
- Install an underground crossing of STH 55 at approximate Sta. 231+35 with pedestals on each side of the road behind the trail and sidewalk. Cable will run southerly along the west right-of-way of STH 55 to a pedestal behind the sidewalk at approximate station 230+75.
- Install an underground crossing of STH 55 at approximate Sta. 234+65 that will tie into the existing pedestals on each side of the road with pedestals on each side of the road behind the trail and sidewalk.
- Install an underground crossing of STH 55 at approximate Sta. 234+60 with pedestals on both sides of the road behind trail and sidewalk and install new cable northerly 3' inside the west right-of-way of STH 55 to a pedestal at approximate Sta. 241+90.
- Install an underground crossing of STH 55 at approximate Sta. 247+75 to a pedestal along the south right-of-way of Gertrude Street at Sta. 33+00 and to a pedestal behind the trail in the southeast quadrant of the roundabout. Cable will run easterly along the south right-of-way line on Maloney Road to a pedestal at station 39+00. Cable will also cross Maloney Road at approximate Sta. 36+00 and run northerly 3' inside the STH 55 east right-of-way line to a pedestal behind the trail at Sta. 251+00 right.

During construction AT&T Wisconsin will:

- Expose and adjust as necessary the existing cable crossing between storm manholes 10.1 and 12.0 at Sta. 209+75, 25' left. Work will be completed in 2 days.
- Expose and adjust the existing cable in conflict with M-44-0002 at Sta. 234+25, left. Work will be completed in 1 working day.
- Adjust the height of existing pedestals after rough grading. Pedestals are located on STH 55 at Sta. 234+70 right, 231+37 left and right, 234+65 right, 240+40 right, 240+55 left, 241+80 left, 253+00 right, and on Gertrude Street at Sta. 31+00 right. Each pedestal adjustment will be completed in approximately 2 hours.

- Expose and adjust the existing conduits between inlet 140.1 and endwall 140 on STH 55 at Sta. 252+00 right (joint with Charter Communications). Work will be completed in 1 working day.
- Expose and adjust the existing conduits between manhole 110 and inlet 110.3 and the existing conduits between inlet 105.4 and inlet 105.5 at the southbound ramps roundabout (joint with Charter Communications). Work will be completed in 1 working day.
- Expose and adjust the existing conduits along STH 55 northbound from Sta. 263+00 2' left to Sta. 264+25 20' right (joint with Charter Communications). Work will be completed in one working day.
- Adjust hand hole at Station 225+25 left after rough grading operations are complete.

Provide a minimum of 5 working days notification to AT&T prior to beginning work in each area so adjustments can be completed concurrently with roadway construction operations.

*Replace entire section titled **Net Lec LLC (communication line)** with the following:*

Net Lec LLC (communication line). Net Lec has overhead facilities within the project limits along STH 55 (Delanglade Street) from Desnoyer Street to the IH 41 north bound ramps located on Kaukauna Utilities poles. Existing overhead lines will be reconstructed to underground lines and tie back into existing overhead facilities on all side roads at the first existing pole not in conflict with the proposed construction. Net Lec relocations will be complete by May 4, 2018. The underground communications cable route will be installed prior to construction as follows:

- From pole on north side of Desnoyer Street beyond the construction limits west of STH 55 along the north side of Desnoyer Street to STH 55 (Delanglade Street).
- Behind the west curb of STH 55 (Delanglade Street) from the north side of Desnoyer Street to Sta. 219+00.
- Behind the west sidewalk/trail of STH 55 (Delanglade Street) from Sta. 219+00 to Sta. 251+75 where a connection will be made with TDS facilities, with a crossing of CTH OO at Station 17+80.

During construction Net Lec will:

- Relocate and adjust existing hand hole at Station 247+10 left to a location behind proposed trail after rough grading operations are complete.

Provide a minimum of 5 working days notification to Net Lec prior to beginning grading in the location of the hand hole so the adjustment can be made concurrently with the grading operations. Net Lec anticipates needing one working day to complete the adjustment.

*Replace entire section titled **TDS Metrocom (communication line)** with the following:*

TDS Metrocom (communication line). TDS Metrocom has underground lines along the IH 41 northbound off ramp and on ramp. The underground lines will be relocated by May 4, 2018, in advance of Stage 3 construction activities, as follows:

- Along the northbound off ramp from Sta. 1104+00 to STH 55 a distance of 1' off the right-of-way.
- Along the west side of STH 55 1' off the right-of-way to station 251+00.
- Crossing STH 55 at Sta. 251+00.
- Along the east side of STH 55 1' off the right-of-way to the northbound on-ramp.
- Along the northbound on-ramp 4' off the right-of-way to tie back to existing line beyond the construction limits.

Replace entire section titled **City of Kaukauna (communication line)** with the following:

City of Kaukauna (communication line). The City of Kaukauna has overhead facilities within the project limits along STH 55 (Delanglade Street) from Blackwell Street to Badger Avenue located on Kaukauna Utilities poles. Existing overhead lines will be reconstructed to underground lines-and tie back into existing overhead facilities on Badger Avenue by May 4, 2018. The underground communications cable route will be installed as follows:

- Behind the sidewalk and trail from the southwest corner of STH 55 and Blackwell Street to Sta. 234+00.
- Crossing STH 55 at Sta. 234+00.
- Along the south right-of-way line of Badger Road to intercept a pole outside the construction limits.

The City of Kaukauna will install an independent underground crossing of STH 55 at Sta. 219+40.

84. Notice to Contractor – Wisconsin Central Ltd Railroad Utility Crossing Permit Requirements.

The department has completed a partial submittal of Utility Crossing Permits for:

- Storm sewer crossing STH 55 (Delanglade Street) adjacent and parallel to CN tracks
- Storm sewer casing and carrier pipe crossing CN tracks on Lawe Street
- Storm sewer parallel to CN tracks along Terry Lane
- Traffic signal loop detector conduit crossing CN tracks on Lawe Street

It is the contractor's responsibility to complete the remainder of the permit submittals on behalf of the Wisconsin Department of Transportation and to obtain all necessary permits for work within the railroad right-of-way. The permit submittal shall be in accordance with the requirements of the CN Southern Region Utility Crossing/Encroachment Application Packet dated 09/12/2017. Copies of the partial permit submittals and the CN Southern Region Utility Crossing/Encroachment Application Packet is available from the regional office by contacting Tim Rank at (920) 360-2579.

The term "Utility" in the CN Southern Region Utility Crossing/Encroachment Application Packet is defined as follows: All work shown in WisDOT construction plan that takes place within CN right-of-way.

The specific requirements of the contractor are to address the following sections outlined in the initial notification of intent to construct utility crossing/encroachment requirements and instructions: (Note- sections that are struck below are either not required or have been addressed in the WisDOT pre-submittal of permits)

The Applicant shall submit a completed application for utility crossing engineering review to the appropriate contact shown in the "Pipeline/Wireline Crossing Contacts" Section (Section I). The application can be downloaded from Railroad's website but the application and all supporting documentation must be submitted to the Railroad via certified mail to the address shown on the application. Any application transmitted to Railroad other than by certified mail, or that does not include all requested information or required documentation will be considered incomplete. Railroad shall notify the applicant when Railroad receives an incomplete application but under no circumstances shall Railroad review an incomplete application. Repeat: no application will be reviewed until the application is complete. Unless otherwise advised by Railroad, all submittals necessary to complete a previously submitted incomplete application must also be submitted via certified mail. Any application which remains incomplete one (1) year after the date of the first notification of an incomplete submittal from Railroad will be discarded and a new application must be submitted, including a new application fee. All information and documentation contained in any application must meet the approval of the Railroad, in its sole discretion. Unless otherwise required by law, Railroad will respond to all applications in the order in which they are received. In no event

shall any construction related activities be scheduled or conducted on Railroad's property until Railroad has issued its final approval of the application, a written agreement outlining the legal terms of the installation has been signed and flaggers have been secured.

(Note to Contractor- WisDOT requested to accept e-mail submittal is pending)

An application shall include the following documents: *(WisDOT has inserted notes to contractor in italics).*

- A completed and signed application form also known as Initial Notification of Intent Form.
(Note to Contractor- WisDOT will supply contractor with partial submittal package)
- A map with an aerial image of the location of where work will be performed, showing the work site as well as nearby streets or other landmarks close to the work location(s).
(Note to Contractor- WisDOT will supply contractor with partial submittal package)
- A certificate of insurance meeting the requirements set forth in this packet (unless lower coverage requirements are prescribed by local law and signed off by CN Legal Department).
(Note to Contractor- Also see Railroad Insurance and Coordination article of special provisions)
- Six (6) copies of complete stamped engineering plans which shall conform to the guidelines established by the American Railway Engineering and Maintenance of Way Association (AREMA), all applicable federal, state and local legal and professional requirements, CN standards and any additional requirements set forth in this packet. In the event of any conflict or inconsistency between the aforesaid guidelines, requirements and standards, the most stringent shall apply.
(Note to Contractor- WisDOT requested to accept e-mail submittal is pending)
- ~~The non-refundable application fee. Unless otherwise specified by law, the non-refundable application fee shall be \$1,350.00, which is intended to cover the cost of Railroad's review of the application and all required documentation and information. The Applicant will be charged an additional fee of \$200 for each review after the initial review of the completed application due to inadequate or missing information or other failure by the Applicant to meet the requirements of Railroad. This fee shall be included with any revision sent. Any revision sent without the accompanying fee will be considered incomplete and will not be reviewed.~~

I. Pipeline/Wireline Utility Contacts

Utilities

Name: Joseph Wojcik
Address: CN
17641 S. Ashland Avenue Homewood, IL 60430
Phone: (708) 332-4739
Email: Josephs.Wojcik@cn.ca

Flagging And/or Cable Locate

Name: Mary Ellen Carmody
Address: CN
24004 Vreeland Road Flat Rock, MI 48134
Phone: (734) 783-4533
Email: MaryEllen.Carmody@cn.ca

II. Scope

~~1. These specifications cover minimum requirements for pipelines installed on or adjacent to railway rights of way to carry liquid flammable products or highly volatile substances under pressure. Railroad reserves the right to increase the specifications based on physical conditions or other factors specific to the installation point, including but not limited to:~~

- ~~a. Track speed~~
- ~~b. Traffic density~~
- ~~c. Traffic sensitivity~~
- ~~d. Terrain conditions~~
- ~~e. Curvature and grade~~
- ~~f. Bridges and other structures~~
- ~~g. Pipe size, capacity and material carried~~
- ~~h. Environmental risks/damages~~

III. Engineering Plan Requirements

1. A cover page including:
 - a. Include caption stating "Construction and maintenance to be in accordance with all applicable regulatory requirements and standards"
 - b. Contact name, address and phone number of Utility Owner
 - c. Professional Engineer's stamp, signature, and date

(Note to Contractor- Engineer's stamp will be required on all contractor produced permit documents)

2. A plan view or site plan displaying:
 - a. ~~A north arrow~~
 - ~~b. Any tracks and railroad facilities~~
 - ~~c. Railroad/roadway crossings~~
 - ~~d. Railroad mileposts~~
 - ~~e. Proposed utility crossing location~~
 - ~~f. Location of proposed utility crossing in relation to a legal description or road allowance~~
 - ~~g. Public Land Survey System (PLSS) Information (sections, quarter sections, etc.)~~
 - ~~h. Right of way lines of railroad and labeled street or highway, if involved~~
 - ~~i. Warning, utility markers that are proposed for the site in accordance with this document.~~
 - ~~j. Indicate direction of flow and location of nearest shut off valves, if shutoff valves are required.~~
 - ~~k. Indicate location and distance of nearest excavation from centerline of nearest track.~~
 - l. Location and methods of storage and disposal of excavated material. Excavated material should be stored to the back side of excavation with respect to the tracks unless this position creates an unsafe condition or a better location can be justified. All excavated material should be treated as contaminated with details provided for review unless known otherwise.
 - m. Excavation protection methods shall be shown for review. All excavations must be protected at all times and fenced in with reflective material or illuminated if left unattended.
3. ~~A profile along the proposed crossing of actual situations showing:~~
 - ~~a. Any tracks~~
 - ~~b. The existing ground surface~~
 - ~~c. The proposed utility~~
 - ~~d. Depth of burial below base of rail, roadway surface, ditch bottom, and other points of interest to the top of utility (depth measured to casing pipe, if used)~~
 - ~~e. Method of installation (i.e. boring, dry jack and bore, dry directional bore, etc.)~~
 - ~~f. Indicate type and details of utility protection.~~
4. ~~Show a detailed spec and cross section of the pipe including:~~

- a. ~~Note and show if carrier pipe will be held clear of the casing pipe by supports. CN requires carrier & casing to be designed for Cooper E-80 loading.~~
 - b. ~~The type, wall thickness, and maximum test pressures of carrier and casing pipes must be listed on the plans. CN requires the AREMA standard listed in Table 1-5-1. Minimum Wall Thickness for Steel Casing Pipe for E80 Loading also found in Section A-2 of this document.~~
 - c. ~~Indicate type of cathodic protection, if required for the type of construction. (See AREMA Section 5.2.3.3 Cathodic Protection for more information)~~
 - d. ~~The ends of the casing shall be suitably sealed to the outside of the carrier pipe or casing vents shall be required.~~
 - e. ~~Provide hoop stress calculation. See AREMA Sections 5.2.3 Carrier Pipe for more information.~~
 - f. ~~Cross sections of the utility shall be perpendicular to the center line of the railroad tracks.~~
 - g. ~~The location of the cross sections will be at:
 - i. ~~Bore pit~~
 - ii. ~~Receiving pit~~
 - iii. ~~Intersection of utility and center line of any tracks~~
 - iv. ~~Any other points of interest along the utility line~~~~
5. ~~A detail of the proposed utility marker to be used on site showing all information to be displayed as well as all dimensions and materials.~~
6. ~~Drawings must be to scale and have all dimensions shown. This includes but is not limited to:~~
- a. ~~Distance from each utility (encroachment) to the centerline of track, nearest road, crossing, bridge or other Railroad structures~~
 - b. ~~Dimension width of CN right-of-way~~
 - c. ~~Number of tracks proposed utility crossing will cross~~
 - d. ~~Angle of proposed utility crossing~~
 - e. ~~All existing and proposed signals and facilities with dimensions showing horizontal distance and depth to the proposed utility~~
7. ~~All information regarding all seeding/surface restoration work shall be provided with the plans and conform to the local DOT specs.~~
8. ~~Revised drawings shall be marked as revised (with revision date included) and state reason for revision. Each individual revision shall be called out in this manner. In addition, each page shall have a section near the title block with a list of revisions, where the revision version and date shall be marked in for any revision to that page.~~
9. ~~Professional Engineer's stamp, signature and date is required on all plans and submittals. (Note to Contractor- Engineer's stamp will be required on all contractor produced permit documents)~~
10. ~~Attachments to the plans as required in the following sections of this document may include but are not limited to:~~
- a. ~~Soil Boring Logs~~
 - b. ~~Geotechnical Report~~
 - c. ~~De-Watering Plan~~
 - d. ~~Induction Interference Study~~
 - e. ~~Vibration Monitoring Plan~~
 - f. ~~Shoring Plan~~
 - g. ~~Site Safety Action Plan~~
 - h. ~~Emergency Action Plan~~
 - i. ~~An estimated construction schedule and Gantt chart with field contact name and phone number.~~
 - j. ~~Detailed Work Plan~~
 - k. ~~Settlement Monitoring Plan~~
 - l. ~~Construction Monitoring Plan~~

IV. Above Ground Utility Requirements

1. General Above Ground Utility Requirements

- a. CN's operations are not to be impaired or affected by any utility work.
 - i. Flagging protection during construction will be required and may be expanded by local supervisors to include any work on, under, over, or near Railroad property.
- b. All employees of contractors not hired by CN that will work on, over, under or near CN property are required to have, at a minimum, safety certification with www.contractororientation.com and the railroad representative will be responsible for verifying and documenting said certifications.
 - i. Applicant must compile an Emergency Action Plan per OSHA which incorporates the proper Railroad contact information. Identify and list an adequate amount of properly trained employees to be able to enter CN property to respond to an emergency situation.
- c. On projects which have the potential to encroach or effect the operations to CN's property, it is required of the contractor to post informational documents at the jobsite for the benefit of the construction workers, CN personal, and the general public. The following required information is to be posted on a bulletin board. The bulletin board shall be weatherproof and watertight and be located in an area readily accessible to both CN and the general public.
 - i. Project overview: Including a general work description, job site location address, and approximate duration of the project
 - ii. Owner / Applicants Information
 - iii. Contractor's Designated points of contact: Including the Safety Officer, Superintendent, and 24 hour contact number
 - iv. Copies of reviewed drawings by CN
 - v. Copies of the Safety Action Plan
 - vi. Copies of approved permits
- d. All utilities must be a minimum of 15 ft horizontally away from any existing or planned CN signals and facilities, when practicable.
- e. Utilities shall not be placed within a culvert, under railroad bridges, nor closer than 300 feet to any portion of any railroad bridge, building, or other structure, except in special cases and be of special design as approved by the CN Chief Engineer or the designated representative.
- f. Must not be attached to a CN pole line or pole lines licensed to others except where specifically authorized.
- g. All poles extending in height above ground equal to or greater than the distance from pole to the edge of ties on the nearest track will be anchored and guyed against tipping toward track.
- i. Guys will be guarded to a distance of 8' above ground line and the guards shall be orange in color.
- h. All clearances and safety provisions are subject to the National Electric Safety Code (American National Standard Institute) as well as any applicable National, State, and local codes, whichever is more restrictive.
- i. All overhead electrical utilities will require an induction interference study.
- j. During construction, the Applicant shall maintain positive drainage of Railroad property. After construction is completed, the Railroad's right of way shall be restored to its original condition and to the satisfaction of the Railroad. Any fencing removed to facilitate construction shall be restored.
- k. All piers or poles shall be located off of CN right-of-way.
- l. Warning, utility markers shall be installed at any intersection of any utility and CN right-of-way, and on any pole on CN right-of-way.

2. Above Ground Utility Crossing Requirements

- ~~a. Utilities crossing over any railroad track must have a minimum height measured at the lowest point of the utility to the top of rail:

 - ~~i. Pipe/Pipe Bridge = 25 ft Min~~
 - ~~a. Cable Supported Pipe Bridge = 50 ft~~
 - ~~ii. Conveyors = 25 ft Min~~
 - ~~iii. Fiber/Coaxial Cable = See Section A-3~~
 - ~~iv. Electric Wire = See Section A-3~~~~
 - ~~b. Utilities shall be located, where practicable, to cross tracks at approximately right angles but must not cross at an angle less than 45 degrees.

 - ~~i. Any utility crossing that is less than 45 degrees will be considered a longitudinal utility and may be subject to higher requirements as required by the CN Chief Engineer or the designated representative.~~~~
 - ~~c. If any new utilities are attached onto an existing structure, the existing structure must be analyzed to ensure it can withstand the new loading. If a re-design of the existing structure is required, this must be included with the plans.~~
- ~~3. Above Ground Longitudinal Utility Requirements~~
- ~~a. All longitudinal utilities shall be placed towards the outer edge of the railroad right-of-way, except in special cases and be of special design as approved by the CN Chief Engineer or the designated representative.~~

V. Underground Utility Requirements

If underground utility is greater in diameter than 10" including any casing protection, the requirements in the Section VI (immediately following this section) are required.

1. General Underground Utilities Requirements
 - a. CN's operations are not to be impaired or affected by any utility work.
 - i. Flagging protection during construction will be required and may be expanded by local supervisors to include any work on, under, over, or near Railroad property.
 - b. All employees of contractors not hired by CN that will work on, over, under or near CN property are required to have, at a minimum, safety certification with www.contractororientation.com and the railroad representative will be responsible for verifying and documenting said certifications.
 - i. Applicant must compile an Emergency Action Plan per OSHA which incorporates the proper Railroad contact information. Identify and list an adequate amount of properly trained employees to be able to enter CN property to respond to an emergency situation.
 - c. On projects which have the potential to encroach or effect the operations to CN's property, it is required of the contractor to post informational documents at the jobsite for the benefit of the construction workers, CN personal, and the general public. The following required information is to be posted on a bulletin board. The bulletin board shall be weatherproof and watertight and be located in an area readily accessible to both CN and the general public.
 - i. Project overview: Including a general work description, job site location address, and approximate duration of the project
 - ii. Owner / Applicants Information
 - iii. Contractor's Designated points of contact: Including the Safety Officer, Superintendent, and 24-hour contact number
 - iv. Copies of reviewed drawings by CN
 - v. Copies of the Safety Action Plan
 - vi. Copies of approved permits

- d. ~~Jacking or boring of corrugated metal pipe, cast iron pipe or pipe with flanges, bells or couplings will not be permitted.~~
 - e. ~~Casing may need to be extended to accommodate any proposed projects for Railroad as required by CN Chief Engineer or the designated representative.~~
 - f. ~~Soils investigation and a geotechnical report may be required.~~
 - g. ~~All underground utilities shall have an adequate casing for protection.~~
 - h. ~~Utilities shall not be placed within a culvert, under railroad bridges, nor closer than 100 feet to any portion of any railroad bridge, building, or other structure, except in special cases and be of special design as approved by the CN Chief Engineer or the designated representative.~~
 - i. ~~Restoration and backfill compaction should conform to a 95% Proctor test suitable for the soil type at the site and commence in lifts specified by the CN Chief Engineer or the designated representative.~~
 - j. ~~No excavation can be closer than 25' from the centerline of the nearest track.~~
 - k. The zone of influence is as follows: Starting 15 feet from the centerline of nearest track at the base of rail, measured perpendicular to the track centerline, calculate a slope to the bottom of the proposed pipe at a 2H:1V slope. (See Section A-6)
 - i. If a 2H: 1V slope cannot be maintained or more restrictive conditions occur, approved shoring will be required. (See Section A-7)
- (Note to Contractor-Excavation can be performed in windows between trains or with use of a certified trench box if agreed to by the railroad. If Shoring is required, it will be considered extra work).*
- ii. If shoring is required as stated above, a shoring plan designed to withstand E-80 loading shall be created, stamped by a Professional Engineer, and submitted to CN.
 - iii. If the excavation is outside the zone of influence, then the excavation shall follow OSHA requirements.
- l. A dewatering plan shall be created, stamped by a Professional Engineer, and submitted to CN as required by the CN Chief Engineer or the designated representative.
 - m. ~~Dry Horizontal Directional Drilling (HDD) is only allowed.~~
 - i. ~~Mud slurry directional bore will be allowed only with the use of vents.~~
 - ii. ~~No wet directional drilling is allowed.~~
 - n. ~~Vibrations Requirements~~
 - i. ~~If there are fiber optic cables buried within the ROW, the Contractor shall submit details on the type of equipment to be used for pile driving, and estimate the vibrations that will be induced at ground level during operation.~~
 - ii. ~~The Contractor may be required to monitor vibrations levels during pile driving operations, for which the Contractor shall submit a procedure and the type of monitoring equipment to be used.~~
 - ~~Induced vibrations shall be limited to a maximum peak particle velocity (PPV) of less than 3.5"/sec (measured in 3 mutually perpendicular directions taken at tie level / ground surface). And induced amplitude of movement shall be less than 1/128"~~
 - ~~Vibrations undertaken within 150 ft of fiber optic cables, induced vibrations shall be limited to a maximum of PPV of less than 1.5"/sec~~
 - o. ~~During construction, the Applicant shall maintain positive drainage of Railroad property. After construction is completed, the Railroad's right of way shall be restored to its original condition and to the satisfaction of the Railroad. Any fencing removed to facilitate construction shall be restored.~~
 - p. ~~Additional Resources for Underground Utilities:~~

<http://www.undergroundfocus.com/onecalldir.php>

Provides links and information on state calls for cable locates

<http://www.ntdpc.com/>

National Telecommunications Damage Prevention Council

<http://www.commongroundalliance.com>

Common Ground Alliance

2. ~~Underground Utility Crossing Requirements~~

- a. ~~For all utility crossings the utility must be protected by a casing for the full width of CN's right-of-way or 50 ft whichever is greater.~~
 - i. ~~All casing pipes shall be sloped not less than 0.3%.~~
 - ii. ~~Pipelines carrying commodities in a gaseous state are not required to have a steel casing as long as the top of the utility is at least 10 ft below base of rail.~~
 - iii. ~~Fiber optic utilities do not need a steel casing if the depth is 15 ft or greater below the base of rail.~~
- b. ~~Directional boring will be allowed at the discretion of the Railroad.~~
 - i. ~~If practicable, boring excavation must not exceed the outside diameter of the pipe.~~
 - ~~Bore shall not be greater than 1" larger than the utility diameter~~
- c. ~~Minimum depth of burial below:~~

- i. ~~Dry jack and Bore~~

- ~~Main Tracks Base of Rail = 6 ft~~
 - ~~Industrial Tracks Base of Rail = 6 ft~~
 - ~~Road Surface = 4 ft~~
 - ~~Ditch Bottom = 5 ft~~

- ii. ~~Uncased Utility~~

- ~~Main Tracks Base of Rail = 10 ft~~
 - ~~Industrial Tracks Base of Rail = 10 ft~~
 - ~~Road Surface = 6 ft~~
 - ~~Ditch Bottom = 6 ft~~

- iii. ~~Directional Bore~~

- ~~Main Tracks Base of Rail = 15 ft~~
 - ~~Industrial Tracks Base of Rail = 15 ft~~
 - ~~Road Surface = 5 ft~~
 - ~~Ditch Bottom = 5 ft~~

- d. ~~Any excavation must not be located on CN right-of-way or within a minimum of 50 ft from the centerline of track, whichever is greater.~~

- e. ~~Warning, utility markers shall be installed at any intersection of any utility and CN right-of-way.~~

- i. ~~Marker should show accurate owner, contact, and CN Agreement Number.~~

3. ~~Longitudinal Underground Utility Requirements~~

- a. ~~Underground utilities laid longitudinally in railroad right-of-way shall be located as far as practicable from any tracks or other important structures.~~
- b. ~~Longitudinal lines must be a minimum of 25 ft from the center line of track, or outside the track embankment section, whichever is greater.~~
- c. ~~Uncased steel carrier pipe utilities laid longitudinally on the railroad right-of-way, 25 ft to 50 ft from the center line of the nearest rail shall be buried not less than 6 ft from the natural ground surface to the top of pipe. If distance is more than 50 ft from centerline of track, minimum cover shall be 5 ft.~~
 - i. ~~At all locations on the right-of-way farther than 25 ft away from the centerline of the nearest track, the minimum natural ground cover for uncased steel natural gas pipes must be 6 ft.~~
- d. ~~Plastic carrier pipes are not allowed for longitudinal utilities on CN right-of-way.~~

- e. ~~Longitudinal underground utilities must be marked by a sign approved by the CN Chief Engineer or the designated representative every 500 ft, at every road crossing, streambed, other utility crossing, and at locations of major change in direction of the line.~~
 - i. ~~Marker should show accurate owner, contact, and CN Agreement Number.~~

VI. Additional Requirements for Underground Utilities with Diameter of 10 Inches or Greater (Including Casing)

1. ~~Drawings shall be stamped, signed, and dated by a Professional Engineer licensed in the State where the work is being performed. CN reserves the right to prohibit a certain construction methodology, at its own discretion; however, CN shall not assume any responsibility for the suitability of the accepted method. Open cut methodology shall only be considered where other installation techniques are deemed impractical and where rail traffic volumes are low. Installations using water jet methods shall not be permitted.~~
2. ~~Complete Subsurface Investigation~~
 - a. ~~Boreholes are required at each end of the crossing and at each entry/exit pit with a maximum spacing between boreholes of 150 ft.~~
 - b. ~~The boreholes shall be drilled to a depth of 20 ft below the proposed crossing depth or to 20 ft below the maximum feasible crossing depth if the proposed crossing depth has not yet been determined.~~
 - c. ~~Soils samples shall be obtained at 3 ft intervals to a depth of 15 ft and also within the proposed utility horizon (i.e., from at least 7 ft or one pipe/casing diameter above the proposed utility obvert to at least 7 ft or one pipe/casing diameter below the proposed utility invert). At other depths, soil samples may be obtained at 5 ft intervals; No boreholes will be completed between ties or tracks in double track territory.~~
 - d. ~~If bedrock is encountered at the proposed location, the bedrock will be cored to establish the competency and engineering characteristics of the bedrock. The bedrock shall be cored to at least 5 ft below the invert of the proposed crossing.~~
 - e. ~~Soil classification testing (i.e., water content determination, Atterberg Limits testing and grain size distributions) shall be carried out on soil samples obtained from all major soil strata and on soil samples obtained from every layer that the proposed tunnel would intersect.~~
 - f. ~~The stabilized groundwater elevation must be established by installation of piezometer/monitoring well(s); at least one piezometer/monitoring well must be maintained in operation and checked prior to construction to confirm the groundwater elevation.~~
3. ~~Submit a stamped Geotechnical Report prepared by a Licensed Geotechnical Engineer with experience in trenchless technology. The Report shall include:~~
 - a. ~~Comments and recommendations with respect to construction methodology~~
 - b. ~~An estimate of the expected extent and magnitude of ground movement over time~~
 - c. ~~Measures to be undertaken to preserve the safety of rail operations and the structural integrity of the track structure~~
 - d. ~~A detailed proposal for ground surface and subsurface monitoring~~
 - e. ~~Factual subsurface information with all field and laboratory test data~~
 - f. ~~A description of the site and soil stratigraphy including results of soil classification testing~~
 - g. ~~A plan of the proposed crossing with borehole/testing/installation locations~~
 - h. ~~A summary of groundwater conditions encountered during the investigation including the observed groundwater levels within the boreholes and the presence of any perched water levels at the borehole locations~~

- i. Anticipated settlements as well as an assessment of the anticipated settlement through configurations
- j. A detailed monitoring plan to monitor any ground surface and subsurface movements during construction shall be provided. The Review and Alert (work stoppage) levels shall be provided
- k. Submit a contingency plan and notification procedure to be implemented in the event of excessive/unexpected settlement or heave, and unforeseen changes in subsurface conditions, i.e. cobbles and boulders, raveling /flowing ground

4. Submit a Detailed Work Plan

- a. Details of the proposed methodology—the installation operations, methods of maintaining and adjusting line and grade, drilled/bored diameter, drill hole stabilization procedures, temporary dewatering measures and any mitigation procedures if sinkholes/settlement above the pipe occurs or excessive movement of the settlement monitors is observed.
- b. The design of the crossing—length, diameter and thickness of the casing, elevations of the crossing invert at both ends, excavation shoring details and methods of dealing with cobbles/boulders and obstructions.
- c. Provide additional details for specific installation methodologies as follows:
 - i. Jack and Bore: size and location of the auger head relative to the casing, estimated jacking thrust required, method of monitoring casing elevation, thrust block design calculations, record keeping system to document casing advance and jacking pressures, bulk heading, and grouting procedures. Bore head should not extend more than 1" ahead of the casing.
 - d. Pipe Ramming: length, diameter and thickness of the casing, details of the reinforcing ring used at the leading edge of the pipe
 - e. HDD; slurry pressure and mitigation measures for frac out if applicable. Vents shall be installed on each side of the track(s) to prevent frac-outs.
 - f. TBM: type of machine, methods of primary ground support, grouting between the casing, ribs and lagging (primary support) and the surrounding soil/rock

5. Submit a Settlement Monitoring Plan including:

- a. Summary of Proposed Settlement Monitoring
 - i. Geographical Location
 - ii. Number of Settlement Monitoring Probes
 - iii. Type of Probe & installation Method
 - iv. Expected Amount of Settlement (in)
 - v. Frequency of Monitoring
 - vi. Duration of Monitoring
- b. Site Plan:
 - i. Site Plan
 - ii. Identify Probe Locations and Offset Distances to Nearest Rails
 - iii. Elevation of Top of Probes
- c. Probe Detail Drawing:
 - i. Show section through Railroad Track Road Bed
 - ii. Existing Ground Line
 - iii. Depth of Bore
 - iv. Distance to Bottom of Probe to Top of Casing Pipe
 - v. Submit a dewatering plan.

6. Monitoring During Construction

- a. Monitoring by a qualified geotechnical personnel and report to CN on a daily basis.
- b. Installation in accordance with the Contractor's detailed work plan.

- ~~e. Over excavation does not occur, and the liner / casing is installed tight to the excavation.~~
 - ~~d. Report theoretical vs. actual volumes of spoils removed on per meter and total bases.~~
 - ~~e. The excavation is fully supported until the liner / pipe installation is complete.~~
 - ~~f. The bulkhead is installed at the end of every work shift or during any prolonged stoppage of work.~~
 - ~~g. Voids are fully grouted to refusal immediately after the completion of liner / pipe installation. Report theoretical vs. actual volumes of grout pumped.~~
7. Reporting to CN during/post Construction
- a. Progress of the contractor and pipe installation and what work was completed on that day,
 - b. ~~A summary of the daily ground surface and subsurface movements showing a comparison to a baseline reading taken before the start of construction, settlements of greater than 3/8" shall be reported to CN immediately.~~
 - c. Any other geotechnical issues that may be of concern to CN.
 - d. ~~Log of settlement survey results showing~~
 - ~~i. Station~~
 - ~~ii. Date and Elevation of Initial Readings~~
 - ~~iii. Date and Elevation of Subsequent Readings~~
 - ~~iv. Difference in Elevation~~
 - e. ~~Submit ground surface and subsurface monitoring reports to CN on a daily basis, showing a comparison to baseline readings taken prior to the commencement of construction. Settlement of 3/16" is to be reported to CN immediately, and a settlement of 3/8" or greater the work is stopped until a resolution is achieved.~~
8. Provide, in writing, the name and phone number of the Applicant's qualified site inspector who will be on the job site on a full-time basis for the duration of construction. Update prior to work beginning if there are any changes.

END OF ADDENDUM