### Wetland Impact Table

<table>
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<tr>
<th>Wetland Number</th>
<th>Location</th>
<th>Wetland Feature</th>
<th>USACE Jurisdictional Wetlands</th>
<th>Wetland Impacts Acre(s)</th>
<th>USFWS Easement Impacts Acre(s)</th>
<th>E/O 11990</th>
<th>USACE</th>
<th>USFWS</th>
<th>Location</th>
<th>Acme(s)</th>
<th>Location</th>
<th>Acme(s)</th>
<th>Mitigation Location; Ratio</th>
<th>Mitigation Required</th>
<th>USACE/11990 Bank Acre(s)</th>
<th>11990 Bank Acre(s)</th>
<th>USFWS Bank Acre(s)</th>
<th>Onsite Acre(s)</th>
<th>Constructed Site #</th>
<th>Constructed Size Acre(s)</th>
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ND 1806 Interchange
Wetlands Mitigation and Environmental
This document was originally issued and sealed by Troy Ripplinger, Registration Number PE-5044, on 08/21/20 and the original document is stored at the North Dakota Department of Transportation.

**A wetland Jurisdictional Determination was issued by the USACE on 02/07/2019; NWO-2006-60561-BIS.**

**1199 Mitigation requirements** - All impacts to natural wetlands (natural/jurisdictional and natural/non-jurisdictional), regardless of size, as well as impacts greater than 0.10 acre to wetlands require mitigation.

USACE Mitigation Requirements – All jurisdictional impacts greater than 0.10 acre to each resource (cumulative, e.g. 1a, 1b, 1c, etc.) requires mitigation. Other Water impact greater than 300 linear feet requires mitigation.

**All artificial/non-jurisdictional, deep water (impacts greater than 6.6 feet), Other Waters less than 300 linear feet (determined by the USACE on a case by case), and temporary impacts do not require mitigation.**

### Impact Summary Table

<table>
<thead>
<tr>
<th>Wetland Type</th>
<th>Permanent Total (Acres)</th>
<th>Temporary Impacts and additional information</th>
<th>Total (Acres/Lf)</th>
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8/21/2020 7:46:47 AM K:\Projects\State\ND\DOT\1802_00662_ND1806Mandan\CAD\10806071.052\Design\Plans\07S\07SWL_001.docm
Temporary: 0.05 Acres
Permanent: 0.00 Acres

LEGEND
Temporary Wetland Impacts

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Sec 23
T-139-N
R-81-W

ND 1806 Interchange

Wetland Impacts

Northwest Ramp
Southwest Ramp
Northeast Ramp
Interstate 94 Westbound
Interstate 94 Eastbound
Mandan Ave
Southeast Ramp

Lot 7
8
11
5
0

8
12
5
0

8
13
0
0

8
14
0
0

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Wetland Impacts
Temporary

LEGEND

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8/21/20 9:00:07 AM

Project Data\ND\2011\1802\ND1806\END\10806071.052\Design\PE-002_INT.dgn
### Temporary Cover Crop

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<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>251</td>
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<td>0.531</td>
<td>ACRE</td>
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### Hydraulic Mulch

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### Silt Fence Unsupported

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### Fiber Rolls 12IN

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### Remove Fiber Rolls 12IN

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<td>261</td>
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### Inlet Protection - Fiber Roll 12IN

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<tr>
<td>708</td>
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### Inlet Protection - Special

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### Remove Inlet Protection - Special

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### Temporary Cover Crop

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### Fiber Rolls 12IN

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### Inlet Protection-Special

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### Inlet Protection-Special

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**Legend**

- Fiber Rolls 12IN
- Silt Fence
- Temporary Cover Crop
- Inlet Protection-Special (Hydromulch)
- Inlet Protection-Fiber Roll 12IN
- Flow Arrow
- Wet Protection-Special
- Wet Protection-Fiber Roll 12IN
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**Temporary Sediment & Erosion Control**

- Temp Cont
- Exst R/W
- Exst Utility Ext
- Silt Fence
- Temporary Cover Crop
- & Hydomulch

**Slope Protection**

- 3:1:40'
- 4:1:60'
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**Temporary Sediment & Erosion Control**

**ND 1806**

Temporary Cover Crop & Hydomulch

Fiber Rolls 12IN

Silt Fence

Inlet Protection Special

Flow Arrow

LEGEND

- Fiber Rolls 12IN
- Silt Fence
- Temporary Cover Crop & Hydomulch
- Flow Arrow
- Inlet Protection Special

**ARTICLE 8.10: TIER 1**

- **6" Curb**
- **6" Curb**
- **6" Curb**
- **6" Curb**

**ARTICLE 8.11: TIER 2**

- **1%**
- **2%**
- **3%**
- **4%**

**ARTICLE 8.12: TIER 3**

- **45'**
- **60'**

**ARTICLE 8.13: TIER 4**

- **3:1**
- **4:1 or flatter**
### Temporary Sediment & Erosion Control

**ND 1806**

Sta 3814+00 to 3817+47.57

#### Legend

- Fiber Rolls 12IN
- Silt Fence
- Temporary Cover Crop & Hydromulch
- Flow Arrow
- Inlet Protection-Special
- Inlet Protection-Fiber Roll 12IN

#### Specifications

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<tr>
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#### Sections

- ND 1806 (Old Red Trail)
- 3815+97.0 47.1' Lt
- 3816+09.0 29.1' Lt

---

**STATE PROJECT NO.**

**ND**

**PROJECT NO.**

**NHJ-1-806(052)071**

**SECTION NO.**

76

**SHEET NO.**

8

---

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8/20/2020
joemorrissette
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8:21:10 AM
Temporary Sediment & Erosion Control

ND 1806
Sta 3821+57 to 3823+50
Sta 12+04.81 to 13+19.26 (PRRBCOL)

SPEC CODE BID ITEM

QTY UNIT

261 0112 FIBER ROLLS 12IN
Sta 3821+57 to Sta 3823+50 70 LF
Sta 12+04 to Sta 12+96 70 LF

261 0113 REMOVE FIBER ROLLS 12IN
Sta 3821+57 to Sta 3823+50 70 LF
Sta 12+04 to Sta 12+96 70 LF

708 1531 INLET PROTECTION FIBER ROLL 12IN
Sta 3821+38.6 66.9 LF
1 EA

708 1532 REMOVAL INLET PROTECTION FIBER ROLL 6IN
Sta 3821+38.6 66.9 LF
1 EA

LEGEND

Fiber Rolls 12IN
Silt Fence
Temporary Cover Crop
& Hydromulch
Flow Arrow

Temporary Sediment & Erosion Control
ND 1806
Sta 3821+57 to 3823+50
Sta 12+04.81 to 13+19.26 (PRRBCOL)
Temporary Sediment & Erosion Control
ND 1806
Sta 3823+50 to 3828+50

Silt Fence
Temporary Cover Crop
A Hydromulch
Flow Arrow

Inlet Protection-Special
Inlet Protection-Fiber Roll 12IN

SPEC CODE BID ITEM | QTY | UNIT
--- | --- | ---
251 1531 | 1 | EA
Sta 3824+07.0 42.9' Lt
Sta 3825+96.6 40.6' Lt
Sta 3826+21.2 49.1' Rt

7081533 | 1 | EA
Sta 3824+07.0 42.9' Lt
Sta 3825+96.6 40.6' Lt
Sta 3826+21.2 49.1' Rt

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State: ND
Project No.: NHU-1-806(052)071
Section No.: Sec 22
T-139-N
R-81-W
Silt Fence
Temporary Cover Crop & Hydomulch
Fiber Rolls 12IN
Flow Arrow
Ditch Checks
Ditch Grade
Spacing (ft)
1%
2%
3%
4%
5%
15'
20'
30'
40'
85'
Slope Protection
Slope
3:1
4:1 or flatter
45'
60'
LEGEND
Inlet Protection-Special
Inlet Protection-Fiber Roll 12IN
SPEC CODE BID ITEM QTY UNIT
251 200 TEMPORARY COVER CROP Sta 3838+50 to Sta 3843+50 0.989 ACRE
253 201 HYDRAULIC MULCH Sta 3838+50 to Sta 3843+50 0.989 ACRE
251 5112 FIBER ROLLS 12IN Sta 3838+50 to Sta 3843+50 383 LF
251 2113 REMOVE FIBER ROLLS 12IN Sta 3838+50 to Sta 3843+50 383 LF
708 1591 INLET PROTECTION FIBER ROLL 12IN 3843+37.0 61.5' Rt 1 EA
3843+37.0 61.5' Rt 1 EA
3843+41.0 61.5' Rt 1 EA
708 1593 REMOVE INLET PROTECTION FIBER ROLL 12IN 3843+37.0 61.5' Rt 1 EA
3843+41.0 61.5' Rt 1 EA
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### Temporary Sediment & Erosion Control

**Project No:** ND 1806  
**Sta:** 3843+50 to 3850+91.22

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<td>252 2091</td>
<td>HYDRAULIC MULCH</td>
<td>0.475</td>
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<td>252 5100</td>
<td>Silt Fence Unsupported</td>
<td>75</td>
<td>LF</td>
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<td>254 5101</td>
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<td>254 5112</td>
<td>FIBER ROLLS 12IN</td>
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**Inlet Protection-Special**

**Fiber Rolls 12IN**

**Temporary Cover Crop & Hydromulch**

**Flow Arrow**

**Silt Fence**

**Temporary Cover Crop**

**Flow Protection Special**

**Flow Protection Fiber Rol 12IN**

---

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### SPEC CODE BID ITEM

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<td>251</td>
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### LEGEND

- Seeding Class I & Hydro-mulch
- Seeding Class I & ECB Type 1
- Seeding Class III & Hydro-mulch
- Seeding Class III & ECB Type 1
- Fiber Rolls 12IN
- Inlet Protection-Fiber Roll 12IN

### Diagram Notes

- Spec 22
  - T-139N
  - R-81-W

- Exit Utility Emt.
- Exit RW

- Ditch Checks
- Ditch Grade
- Spacing (ft)
- 1%
- 2%
- 3%
- 4%
- 5%
- 10'
- 20'
- 30'
- 40'
- 5'
- 85'
- 15'
- 20'
- 25'
- 30'
- 40'
- 60' or Flatter
- 45'
- 85'
- Slop Protection

- See Sec 77 Sheet 5
- See Sec 77 Sheet 7

### Sheet Information

- ND 1806 (Old Red Trail)
- Sta 3804+00 to 3809+00

### Permanent Sediment & Erosion Control

- Sta 3804+00 to 3809+00
SPEC CODE  BID ITEM  QTY  UNIT  
251  0101  SEEDING CLASS I  Sta 3814+00 to Sta 3817+50  0.105 ACRE  
251  0300  SEEDING CLASS III  Sta 3814+00 to Sta 3817+50  0.455 ACRE  
253  0201  HYDRAULIC MULCH  Sta 3814+00 to Sta 3817+50  0.410 ACRE  
255  0101  ECB TYPE 1  Sta 3814+00 to Sta 3817+50  724 SF  
261  0112  FIBER ROLLS 12IN  Sta 3814+00 to Sta 3817+50  10 LF  

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ND 1606
Permanent Sediment & Erosion Control
ND 1606
Sta 3814+00 to 3817+47.57

LEGEND

Seeding Class I & ECB Type 1
Seeding Class I & ECB Type 1
Seeding Class III & Hydro-mulch
Seeding Class III & Hydro-mulch
Seeding Class III & ECB Type 1
Seeding Class III & ECB Type 1

Fiber Rolls 12IN
Flow Arrow

State Project No.  ND
Project No.  NHU-1-806(052)071
Sheet No.  77
Scale  1"=20'-0"

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Permanent Sediment & Erosion Control

North Dakota DOT
Project No. ND-1806

Sheet 77

Section 22
T-139-N
R-81-W

23 3824 3825 3826 3827 3828

Private Drive

Exst R/W

See Sec 77 Sheet 10

Sta 3823+50 to Sta 3828+50

1.536 ACRE

253 0201 HYDRAULIC MULCH

Sta 3823+50 to Sta 3828+50

0.946 ACRE

255 0101 ECB TYPE 1

Sta 3823+50 to Sta 3828+50

2,858 SY

261 0112 FIBER ROLLS 12IN

Sta 3823+50 to Sta 3828+50

296 LF

LEGEND

Seeding Class II & ECB Type 1
Seeding Class III & ECB Type 1
Seeding Class III & Hydro-mulch
Seeding Class I & Hydro-mulch
Fiber Rolls 12IN
Flow Arrow
Inlet Protection-Fiber Roll 12IN

Slope Protection

Slope
Spacing (ft)

1% 40'
2% 45'
3% 30'
4% 21'
5% 17'
6% 10'

Ditch Checks

Ditch Grade

1% 85'
2% 60'
3% 30'
4% 20'
5% 15'
6% 10'

State
Project No.
Section
Sheet
### SPECIFICATION

**SPEC CODE** 0300  
**ITEM** SEEDING CLASS III  
**QTY** 1.065  
**UNIT** ACRE

**SPEC CODE** 0201  
**ITEM** HYDRAULIC MULCH  
**QTY** 0.559  
**UNIT** ACRE

**SPEC CODE** 0101  
**ITEM** ECB TYPE 1  
**QTY** 2,449  
**UNIT** SY

**SPEC CODE** 0112  
**ITEM** FIBER ROLLS 12IN  
**QTY** 76  
**UNIT** LF

### LEGEND
- Seeding Class I & Hydro-mulch
- Seeding Class I & ECB Type 1
- Seeding Class III & Hydro-mulch
- Seeding Class III & ECB Type 1
- Fiber/Rolls 12IN
- Flow Arrow
- Inlet Protection-Fiber Roll 12IN

### Ditch Checks

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<th>1%</th>
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---

**STATE** ND  
**PROJECT NO.** NHU-1-806(052)071  
**SECTION NO.** 77  
**SHEET NO.** 12

**ND 1806**  
Permanent Sediment & Erosion Control  
**ND 1806**  
Sta 3828+50 to 3833+50
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**LEGEND**
- Seeding Class I & Hydraulic Mulch
- Seeding Class I & ECB Type 1
- Seeding Class II & Hydraulic Mulch
- Seeding Class III & ECB Type 1
- Fiber Rolls 12IN
- Inlet Protection-Fiber Roll 12IN

**Slope Protection**
- 1%: 40'
- 2%: 45'
- 3%: 37'
- 4%: 30'
- 5%: 17'

**Flow Arrow**
- Fiber Rolls 12IN
- Inlet Protection-Fiber Roll 12IN

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**STATE**
- ND

**PROJECT NO.**
- NHU-1-806(052)071

**SECTION NO.**
- 77

**SHEET NO.**
- 14

**ND 1806**

Permanent Sediment & Erosion Control

Sta 3838+50 to 3843+50
Permanent Sediment & Erosion Control

ND 1806
Sta 3843+50 to 3848+50

SPEC CODE | BID ITEM | QTY | UNIT
--- | --- | --- | ---
251 | 0300 | 0.952 | ACRE
253 | 0201 | 0.465 | ACRE
255 | 0101 | 2,358 | SY
261 | 0112 | 108 | LF

LEGEND
- Seeding Class I & ECB Type 1
- Seeding Class II & ECB Type 1
- Seeding Class III & ECB Type 1
- Fiber Rolls 12IN
- Pipe Protection - Fiber Roll 12IN

Ditch Checks
- 1%: 45'
- 2%: 65'
- 3%: 90'
- 4%: 105'
- 5%: 120'

Slope Protection
- 3.1: 40'
- 4.1 or Fuller: 60'

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Begin Chain Link Fence  Sta 3781+42 ~ 50’ Lt

Install Corner Assembly  Sta 3783+01 ~ 41’ Lt

Install Corner Assembly  Sta 3784+53 ~ 41’ Lt

Install Corner Assembly  Sta 3785+94 ~ 41’ Lt

End Chain Link Fence  Sta 3785+94 ~ 50’ Lt

SPEC  CODE  BID ITEM  QTY  UNIT
752  0600  FENCE CHAIN LINK
Sta 3781+42~50’ Lt to Sta 3783+01~41’ Lt  145  LF
Sta 3783+01~41’ Lt to Sta 3785+94~41’ Lt  281  LF
Sta 3785+94~41’ Lt to Sta 3785+94~50’ Lt  9  LF

752  3100  CORNER ASSEMBLY CHAIN LINK
Sta 3783+01 ~ 41’ Lt  1  EA
Sta 3784+53 ~ 41’ Lt  1  EA
Sta 3785+94 ~ 41’ Lt  1  EA

Legend
- - - - Chain Link Fence
- - - - Corner Assembly Chain Link

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Todd Hummel
Registration Number PE-16606
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ND 1806
Fencing Layout
Sta 3782+00 to Sta 3786+00 (PR1806)
### HORIZONTAL ALIGNMENT

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<th>STATION</th>
<th>NORTTHING</th>
<th>EASTING</th>
<th>ARC DEFINITION</th>
<th>CURVE DATA</th>
<th>US PUBLIC LAND SURVEY DATA</th>
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### SURVEY CONTROL POINTS

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### SURVEY CONTROL POINTS

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### NOTES:

- All coordinates on this sheet are Morton County ground coordinates.
- They are derived from the NAD83(2011) reference frame: North Dakota South Zone Coordinate System ('59) 0.9598465

**Assumed Co ordinates.**

**Inclining Bench Mark NPSGS Stations (OPUS)**

**NAD88**

**NGVD29**

**GEOID 09**

**GEOID 12B**

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## Preliminary Survey Coordinate and Curve Data - ND 1806 - I-94 to 27th St NW

### Horizontal Alignment

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### Notes

- Control was developed from Static Network based on OPUS Solutions.
- All coordinates and measurements on this document derived from the International Foot definition.
- This document was originally issued and sealed by Brian R. Heath Registration Number LS-7538 on 08/21/20 and the original document is stored at the North Dakota Department of Transportation.

**NOTES:** Sheet 2 of 3

Control was developed from Static Network based on OPUS solutions.

**Data Survey Completed 8/26/2018**
## HORIZONTAL ALIGNMENT

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## CURVE DATA

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## SURVEY CONTROL POINTS

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Chord Bear  = N  36° 29' 10.07" W  
C.C.                               N        429,801.8996  E      1,878,102.6209 
P.C.  Station          3759+75.04  N        427,294.4370  E      1,875,221.0011 

Long Chord  =            605.0194  

Point STAEQU1  N     428,454.5797  E   1,872,432.1060  

Length      =            605.6536  
P.I.  Station          3762+78.50  N        427,523.3646  E      1,875,021.7981 

*----------*  

Beginning chain PR180612 description  
3840+00  
POT 3859+94.28  
PT 3847+78.58  
PC 3842+11.82 

Course from PR180612 to PC PR1806_9 N 26° 04' 03.26" W  
Dist 1,347.4803  

Point PR18067         N     428,043.0683 E   1,874,721.5545 Sta    3768+77.96 

Course from PT PR1806_4 to PR18067 N 25° 56' 24.71" W  
Dist 88.6599  

Chord Bear  = N  28° 56' 31.30" W  
Back        = N   31° 16' 55.03" W  

P.T.  Station          3767+89.30  N        427,963.3408  E      1,874,760.3373 
P.C.  Station          3765+80.69  N        427,780.8731  E      1,874,861.2395 

Mid. Ord.   =              2.7317  
Long Chord  =            208.5083  
External    =              2.7354  
Radius      =          1,990.8034  
Length      =            208.6037  
Degree      =       2° 52' 40.88"  
P.I.  Station          3766+85.09  N        427,869.4613  E      1,874,806.0041 

Point PR180628        N     433,315.2581 E   1,869,798.8398 Sta    3859+94.28 

Back        = N   1° 16' 26.19" W  

P.T.  Station          3847+78.58  N        432,108.4693  E      1,869,945.7654 
P.C.  Station          3837+99.46  N        431,131.1366  E      1,869,995.5155 

Mid. Ord.   =             7.0065  
External    =              7.0151  
Radius      =          5,729.6507  
Length      =            566.7681  
Tangent     =            283.6154  
Degree      =       0° 59' 59.95"  

This document was originally 
issued and sealed by 
Todd Hummel 
Registration Number 
PE-10606 
on 08/21/2019 and the original 
document is stored at the 
North Dakota Department 
of Transportation

ND 1806  
Survey Coordinate and Curve Data  
PR1806
Chord Bear = N 87° 02’ 35.84” E
Ahead       = N 84° 52’ 03.32” E
Back        = N 89° 13’ 08.36” E

P.T. Station            50+97.66  N        429,303.3968  E      1,870,250.1400
Mid. Ord.   =              0.1622
Long Chord  =             17.0838
Radius      =            225.0000
Length      =             17.0879
Tangent     =              8.5481
Degree      =      25° 27’ 53.25”

P.I.  Station            50+89.12  N        429,302.6321  E      1,870,241.6262

Curve PRRBSWOP_9
P.I. Station            50+00.00  N        429,300.9588  E      1,870,252.5353

Point PRRBSWOP7      N     429,302.3246 E   1,870,219.0641 Sta      50+66.56
Point PRRBSWOP3      N     429,301.4706 E   1,870,190.0817 Sta      50+37.55
Point PRRBSWOP1      N     429,300.9588 E   1,870,152.5353 Sta      50+00.00

Point PRRBSWOP17     N     429,078.2636 E   1,870,448.8548 Sta      54+62.06
Course from PT PRRBSWOP_15 to PRRBSWOP17 S 0° 24’ 31.98” E Dist 36.5240
Ahead       = S   0° 24’ 31.98” E

Curve PRRBSWOP_10
P.I. Station            50+04.78  N        429,135.5479  E      1,870,448.3234

Point PRRBSWOP18     N     429,120.5602 E   1,870,448.5530 Sta      54+19.76
Course from PT PRRBSWOP_14 to PRRBSWOP18 S 4° 03’ 31.20” E Dist 11.5474
Ahead       = S 4° 03’ 31.20” E
Chord Bear = S  12°  30’  51.51” E

P.I.  Station            50+13.99  N        429,126.3333  E      1,870,448.6660

Curve PRRBSWOP_14
P.I. Station            50+04.78  N        429,135.5479  E      1,870,448.3234

Point PRRBSWOP19     N     429,120.5602 E   1,870,448.5530 Sta      54+19.76
Course from PT PRRBSWOP_15 to PRRBSWOP19 S 4° 03’ 31.20” E Dist 11.5474
Ahead       = S 4° 03’ 31.20” E
Chord Bear = S  12°  30’  51.51” E

P.I.  Station            50+13.99  N        429,126.3333  E      1,870,448.6660

Curve PRRBSWOP_15
P.I. Station            50+04.78  N        429,135.5479  E      1,870,448.3234

Point PRRBSWOP19     N     429,120.5602 E   1,870,448.5530 Sta      54+19.76
Course from PT PRRBSWOP_15 to PRRBSWOP19 S 4° 03’ 31.20” E Dist 11.5474
Ahead       = S 4° 03’ 31.20” E
Chord Bear = S  12°  30’  51.51” E

P.I.  Station            50+13.99  N        429,126.3333  E      1,870,448.6660

Curve PRRBSWOP_16
P.I. Station            50+00.00  N        429,300.9588  E      1,870,252.5353

Point PRRBSWOP17     N     429,078.2636 E   1,870,448.8548 Sta      54+62.06
Course from PT PRRBSWOP_15 to PRRBSWOP17 S 0° 24’ 31.98” E Dist 36.5240
Ahead       = S 0° 24’ 31.98” E
Chord Bear = S  0° 24’ 31.98” E

P.I.  Station            50+04.78  N        429,135.5479  E      1,870,448.3234

Curve PRRBSWOP_17
P.I. Station            50+00.00  N        429,300.9588  E      1,870,252.5353

Point PRRBSWOP17     N     429,078.2636 E   1,870,448.8548 Sta      54+62.06
Course from PT PRRBSWOP_15 to PRRBSWOP17 S 0° 24’ 31.98” E Dist 36.5240
Ahead       = S 0° 24’ 31.98” E
Chord Bear = S  0° 24’ 31.98” E

P.I.  Station            50+04.78  N        429,135.5479  E      1,870,448.3234

Curve PRRBSWOP_18
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Survey Coordinate and Curve Data

- ND 1806
- Section 1
- Sheet 8
- 8/20/2020

This document was originally issued and sealed by Troy Ripplinger Registration Number PE-5954, on 08/25/20 and the original document is stored at the North Dakota Department of Transportation.

ND 1806

Survey Coordinate and Curve Data

- PRRBNEEOP

This is the end of the survey coordinate and curve data.
Chord Bear  = S  13° 25' 35.50" E
Ahead       = S   9° 13' 27.79" E
C.C.                               N        429,472.1232  E      1,870,193.1578
P.T.  Station            50+55.33  N        429,504.1834  E      1,870,390.5714
Mid. Ord.   =              0.5377
Long Chord  =             29.3102
External    =              0.5391
Radius      =            200.0000
Length      =             29.3365
Tangent     =             14.6946
Degree      =      28° 38' 52.40"
Delta       =       8° 24' 15.43" (RT)

P.I.  Station            50+40.69  N        429,518.6880  E      1,870,388.2159

Chord Bear  = S  17° 49' 31.51" E
Ahead       = S  17° 37' 43.22" E
P.C.  Station            50+16.29  N        429,541.9321  E      1,870,380.7946
Mid. Ord.   =              0.0083
Long Chord  =              9.7055
External    =              0.0083
Radius      =          1,413.1900
Length      =              9.7055
Tangent     =              4.8528
Degree      =       4° 03' 15.69"
Delta       =       0° 23' 36.59" (RT)

P.I.  Station            50+21.14  N        429,537.3174  E      1,870,382.2960

Chord Bear  = S  46° 41' 27.11" W
Ahead       = S  61° 39' 48.19" W
Back        = S  31° 43' 06.03" W
C.C.                               N        429,515.4958  E      1,870,232.3510
P.T.  Station            52+21.06  N        429,370.2671  E      1,870,310.6684
P.C.  Station            51+34.82  N        429,428.7480  E      1,870,372.7071
Mid. Ord.   =              5.6018
Long Chord  =             85.2574
External    =              5.7986
Radius      =            165.0000
Length      =             86.2355
Tangent     =             44.1268
Degree      =      34° 43' 28.97"
Delta       =      27° 33' 20.17" (RT)

P.I.  Station            51+78.95  N        429,391.2119  E      1,870,349.5077

Course from PRRBNWEOP1 to PRRBNWEOP14 S 15° 23' 35.35" E Dist 16.2912
Point PRRBNWEOP1      N     429,557.6389 E   1,870,376.4703 Sta      50+00.00
Point PRRBNWEOP14     N     429,346.6204 E   1,870,189.4662 Sta      53+46.26
Course from PT PRRBNWEOP_9 to PRRBNWEOP12 S 89° 13' 08.36" W Dist 18.5643
Point PRRBNWEOP12 N 429,346.0674 E 1,870,198.9165 Sta 53+35.81
Point PRRBNWEOP14 N 429,346.0694 E 1,870,198.9185 Sta 53+46.39
Point PRRBNWEOP15 N 429,346.1595 E 1,870,198.9188 Sta 53+53.81

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Beginning chain PRRBCCEOP description

Curve PRRBCCEOP_1
P.I. Station 80+00.00 N 429,265.1200 E 1,870,433.4563
Delta = 90° 00' 00.00" (L)
Degree = 84° 57' 57.49"
Length = 106.0288
Radius = 67.5000
External = 27.9594
Mit Ord. = 19.7703
P.C. Station 81+12.06 N 429,408.3117 E 1,870,481.1860
C.C. = N 40° 00' 00.00" W
Ahead = N 45° 00' 00.00" W
Chord Bear = Due East

Curve PRRBCCEOP_2
P.I. Station 81+06.03 N 429,312.8517 E 1,870,481.1860
Delta = 90° 00' 00.00" (L)
Degree = 84° 57' 57.49"
Length = 106.0288
Radius = 67.5000
External = 27.9594
Mit Ord. = 19.7703
P.C. Station 82+12.06 N 429,408.3117 E 1,870,481.1860
C.C. = N 40° 00' 00.00" W
Ahead = N 45° 00' 00.00" W
Chord Bear = Due North

Curve PRRBCCEOP_3
P.I. Station 82+79.56 N 429,456.0408 E 1,870,433.4563
Delta = 90° 00' 00.00" (L)
Degree = 84° 57' 57.49"
Length = 106.0288
Radius = 67.5000
External = 27.9594
Mit Ord. = 19.7703
P.C. Station 83+18.09 N 429,408.3117 E 1,870,481.1860
C.C. = N 40° 00' 00.00" W
Ahead = N 45° 00' 00.00" W
Chord Bear = Due South

Ending chain PRRBCCEOP description

Curve PRRBCCEOP_4
P.I. Station 83+85.59 N 429,360.5814 E 1,870,337.9969
Delta = 90° 00' 00.00" (L)
Degree = 84° 57' 57.49"
Length = 106.0288
Radius = 67.5000
External = 27.9594
Mit Ord. = 19.7703
P.C. Station 84+24.12 N 429,312.8517 E 1,870,385.7266
C.C. = N 40° 00' 00.00" W
Ahead = N 45° 00' 00.00" W
Chord Bear = Due South
LEGEND

Tree symbols vary for species see Plant Schedule on Sheet 9

(1) Quantity
(2) Species, See Plant Schedule on Sheet 9

STATE

PROJECT NO.  

ND    NHU-1-806(052)071

SECTION  

85  1

ND 1806
Landscape Plan
Sta 3784+00 to Sta 3789+00 (PR1806)

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY
Brett Gurholt,
Landscape Architect
REGISTRATION NUMBER 40,
on 08/26/20 and the original
document is stored at the
North Dakota Department
of Transportation

8/19/2020

Joemorrissette
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1:33:31 PM

of Transportation
Registration Number

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LEGEND

Tree symbols vary, for species see Plant Schedule on Sheet 9

(1) Quantity

(AA) Species, See Plant Schedule on Sheet 9

This document was originally issued and sealed by

Brett Gurholt,

Landscape Architect

Registration Number 40,

on 08/21/20 and the original document is stored at the

North Dakota Department of Transportation

ND 1806

Landscape Plan

Sta 3789+00 to Sta 3794+00 (PR1806)
This document was originally issued and sealed by Brett Gurholt, Landscape Architect, Registration Number 40, on 08/21/20 and the original document is stored at the North Dakota Department of Transportation.

ND 1806
Landscape Plan
Sta 3809+00 to Sta 3814+00 (PR1806)
Plant Schedule

PERENNIALS

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TREES

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<td>Aesculus x carnea ‘Autumn Splendor’</td>
<td>B&amp;B/CONT</td>
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<td>EA</td>
<td>51</td>
<td>Embers Amur Maple</td>
<td>Acer ginnala ‘Embers’</td>
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<td>1.5&quot;</td>
<td>4'-6'</td>
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<td>HS</td>
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<td>Red Splendor Crabapple</td>
<td>Malus ‘Red Splendor’</td>
<td>B&amp;B/CONT</td>
<td>1.5&quot;</td>
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<td>SS</td>
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<td>Spring Snow Crabapple</td>
<td>Malus x ‘Spring Snow’</td>
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<td>4</td>
<td>Bur Oak</td>
<td>Quercus macrocarpa</td>
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<td>Japanese Tree Lilac</td>
<td>Syringa reticulata</td>
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<td>Ulmus americana ‘Lewis &amp; Clark’</td>
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Tree Planting Details

- Use three stakes with separate flexible ties, remove after one year
- 12 gauge galvanized double strand wire @ 120 deg intervals
- 2" fabric striping
- Root collar and top of root ball should be at grade and root collar exposed
- Keep mulch away from trunk base and root collar
- 3'-4" layer of wood mulch over root ball and burlap
- 6-foot diameter

Boulder Placement Detail

- 36"-48" fieldstone boulder, located per plans, do not scar or damage
- Bury 1/2 of boulder below finish grade
- Adjacent 3'-4" river rock
- Set ball on undisturbed soil to prevent settling
- Extend stakes into undisturbed soil
- 3x widest diameter of root ball

Tree Planting Detail on Slope - 20:1 to 3:1

- Use three stakes with separate flexible ties, remove after one year
- 12 gauge galvanized double strand wire @ 120 deg intervals
- 2" fabric striping
- Keep mulch away from trunk base and root collar
- 3'-4" layer of wood mulch over root ball and burlap
- 6-foot diameter

Landscaping Details

This document was originally issued and sealed by Brett Gurholt, Landscape Architect, Registration Number 40, on 08/21/20 and the original document is stored at the North Dakota Department of Transportation.
1. Contractor to verify all quantities needed to restore impacted area to original condition.

2. Contractor to verify all quantities needed to restore impacted area to original condition.

3. Contractor to verify all quantities needed to restore impacted area to original condition.

4. Contractor to verify all quantities needed to restore impacted area to original condition.

5. Contractor to verify all quantities needed to restore impacted area to original condition.

6. Contractor to verify all quantities needed to restore impacted area to original condition.

7. Contractor to verify all quantities needed to restore impacted area to original condition.

8. Contractor to verify all quantities needed to restore impacted area to original condition.

9. Contractor to verify all quantities needed to restore impacted area to original condition.

10. Contractor to verify all quantities needed to restore impacted area to original condition.
All Elevations are Top Finish Grade of Rock or Curb

LEGEND

36" - 48" Fieldstone Boulder
1.5" River Rock
1.5" River Rock & Stella D'Oro Daylilly
Red Splendor Crabapple

Grading Overview

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ND 1806
Landscape Plan

08/21/20
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### LEGEND

- **2" Dia Core Hole**
- **Longitudinal Keyed Joint** (See Standard Drawing D550-2)
- **Tied Joint** (See Standard Drawing D550-2)
- **Detectable Warning Panels**
- **Aggregate Surface Course CL 5**
- **Non-Reflect Concrete Pavement CL**
- **AE-Doweled on 8IN CL 5 on Type G**
- **Colored (8IN) on 8IN CL 5 on Type G**
- **Pavement Reinforcement** (See Section 20 Sheet 8)
- **4" HMA FAA 45 on 4IN CL5 (Trail)**
- **5IN HMA FAA 45 on 12IN CL 5 on Type G**
- **4IN HMA FAA 45 on 12IN CL 5**
- **2.5IN HMA FAA 45 (Overlay)**
- **4IN Smooth Concrete on 4IN CL 5**
- **6IN Driveway Concrete on 6IN CL 5**
- **Pigmented Imprinted Concrete**

### SPEC CODE BID ITEM | QTY | UNIT
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302 | 0120 | AGGREGATE BASE COURSE CL 5
Sta 3794+00 to Sta 3799+00 | 1,667 | TON

- **EXH**
- **EXT R/W**

### ND 1806

- **Paving Layouts**
- **Sta 3794+00 to 3799+00**

---

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---

**ND 1806**

Sta 3821+57.00 to Sta 3850+56.00

---

**ND 1806**

Sta 3794+00 to 3799+00

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8/20/20 5:31:33 AM
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**ND 1806**

Paving Layouts

ND 1806

Sta 3799+00 to 3804+00

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**LEGEND**

- 5IN HMA FAA 45 on 12IN CL 5 on Type G
- 4IN HMA FAA 45 on 12IN CL 5
- 4IN HMA FAA 45 on 12IN CL 6 (Overlay)
- 2.5IN HMA FAA 45 (Overlay)
- 4IN Smooth Concrete on 4IN CL 5
- 6IN Driveway Concrete on 4IN CL 5
- Pigmented Imprinted Concrete
- Non-Red Concrete Pan CL AC Doweled on 6IN CL 5 on Type G
- Pavement Reinforcement (See Section 20 Sheet B)
- Non-Red Concrete Pan CL AC Doweled; Colored (8IN) on 4IN CL 5 on Type G
- Aggregate Surface Course CL 5
- Detectable Warning Panel
- Longitudinal Keyed Joint
- See Standard Drawing D505-2
- Tied Joint
- See Standard Drawing D505-3
- Doweled Joint
- See Standard Drawing D505-3
- 2" Dia Core Hole

---

**STATE PROJECT NO.**

ND

**PROJECT NO.**

NHU-1-806(052)071

**SECT NO.**

5

**SHEET NO.**

10

**ND 1806 (Old Red Trail)**

Private Drive

16th St NE

37' 72IN

Valley Gutter

R-81-W

T-139-N

Sec 22

Sta 3799+00 to Sta 3804+00 (Mainline)

Sta 3801+20 Lt (16th St NE)

Sta 3801+25 Rt (Driveway)

Sta 3799+00 to Sta 3804+00 (Mainline)

Sta 3801+20 Lt (16th St NE)

Sta 3801+25 Rt (Driveway)

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LEGEND

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ND 1806
Paving Layouts
ND 1806
Sta 3804+00 to 3809+00
10520040000 ?806-100; Sta 3814+00 to Sta 3817+47.57 (Sta 3815+00 L1 (Bisan Sports Complex)) 1 115 TON
10520041000 3814+49.57 L1 (Bisan Sports Complex) 1 201 TON
10520041100 Sta 3814+49.57 L1 (Bisan Sports Complex) 1 33 TON
10520041200 Sta 3814+49.57 L1 (Bisan Sports Complex) 1 6 TON
10520041300 Sta 3817+27 Li (Driveway) 1 14 TON
10520041400 3815+00 Li (Bisan Sports Complex) 1 156 TON
09120043000 St 3814+50 to St 3817+47.57 (Sta 3816+00 L1 (Bisan Sports Complex)) 1 57 TON
10520043200 Sta 3817+27 Li (Driveway) 1 7 TON
10520044000 Sta 3815+00 Li (Bisan Sports Complex) 1 274 GAL
10520045000 Sta 3817+47.57 L1 (Bisan Sports Complex) 1 40 GAL
10520046000 Sta 3815+47.57 L1 (Bisan Sports Complex) 1 247 GAL
10520047000 Sta 3817+47.57 L1 (Bisan Sports Complex) 1 10 SFR
10520048000 Sta 3814+00 L1 (Bisan Sports Complex) 1 42 SFR
10520049000 Sta 3817+27 Li (Driveway) 1 42 SFR
10520050000 Sta 3817+47.57 L1 (Bisan Sports Complex) 1 64 SFR
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**Legend**

- Aggregate Base Course CL 5
- Aggregate Surface Course CL 5
- Detectable Warning Panels
- Longitudinal Keyed Joint
- Transverse Joint
- 2" Dia Core Hole

*See Standard Drawing D550-3*

**Notations**

- 4IN HMA FAA 45 on 12IN CL 5 on Type G
- 4IN HMA FAA 40 on 12IN CL 5
- 4IN HMA FAA 40 on 12IN CL 5 (Trail)
- 2.5IN HMA FAA 45 (Overlay)
- 4IN Sidewalk Concrete on 12IN CL 5
- CN Driveway Concrete on 14IN CL 5
- Pigmented imprinted Concrete
- BN Non Self Concrete Pave CL 5
- AC Drained on BN CL 5 on Type G
- Doweled Joint
- (See Section 28 Sheet 6)
- AE-Doweled on 8IN CL 5 on Type G
- Non-Reflect Concrete Pavement on 8IN CL 5
- Colored (BN) on 4IN CL 5 or Type G
- Pavement Reinforcement
- See Standard Drawing D550-3
- 4IN HMA FAA 45 on 12IN CL5 (Trail)

*PR1806: Sta 3821+57 to Sta 3850+56.00*

**Notes**

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Legend:
- 5IN HMA FAA 45 on 12IN CL 5 on Type G
- 4IN HMA FAA 45 on 12IN CL 5
- 2.5IN HMA FAA 45 (Overlay)
- 4IN Smooth Concrete on 4IN CL 5
- 8IN Driveway Concrete on 4IN CL 5
- Pigmented Imprinted Concrete
- 8IN Non Reinf Concrete Pavement CL
- AC Dowelled on 8IN CL 5 on Type G
- Pavement Reinforcement (See Section 20 Sheet 13)
- Non Reinf Concrete Pavement CL AC Dowelled Colored (8IN) on 8IN CL 5 on Type G
- Aggregate Surface Course CL 5
- Detectable Warning Panels Longitudinal Repeal joints (See Standard Drawing D500-2)
- Tied Joint (See Standard Drawing D500-2)
- Dowelled Joint (See Standard Drawing D500-3)
- 2' Dia Core Hole

SPEC CODE BID ITEM                  QTY       UNIT
302 D120 AGGREGATE BASE COURSE CL 5
Sta 3834+50 to Sta 3838+50 (Widening) 376 TON
302 D120 AGGREGATE SURFACE COURSE CL 5
Sta 3834+50 to Sta 3838+50 (Widening) 56 TON
411 D005 TACK COAT
Sta 3838+50 to Sta 3838+50 (Overlay) 107 GAL
Sta 3839+50 to Sta 3839+50 (Widening) 86 GAL
410 D045 SUPERPAVE FAA AG
Sta 3838+50 to Sta 3838+50 (Overlay) 185 TON
Sta 3839+50 to Sta 3839+50 (Widening) 102 TON
410 A005 PG 58-20 ASPHALT CEMENT
Sta 3838+50 to Sta 3838+50 (Overlay) 11 TON
Sta 3839+50 to Sta 3839+50 (Widening) 6 TON

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ND 1806
Paving Layouts
ND 1806
Sta 3833+50 to 3838+50

8/20/2020  8:31:47 AM  joemorrissette  K:\Projects\State\ND\DOT\1802_00662_ND1806Mandan\CAD\10806071.052\Design\Plans\090\090PL_013.dgn
**Exhibit Shared Use Path**

**Legend**

- 2IN HMA FAA 45 on 12IN CL 5 on Type G
- 4IN HMA FAA 45 on 12IN CL 5
- 4IN HMA FAA 45 on 4IN CL 5 (Tand) 2.5IN HMA FAA 45 (Overlay)
- 4IN Sidewalk Concrete on 4IN CL 5
- 8IN Driveway Concrete on 6IN CL 5
- Pigmented Imprinted Concrete
- AE-Doweled on 8IN CL 5 on Type G
- Pavement Reinf.
- (See Section 20 Sheet 8)
- Non Red Concrete Port CL AE-Doweled-Colored (8IN) on 4N CL 5 on Type G
- Aggregate Surface Course CL 5

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ND 1806
Paving Layouts

ND 1806 Sta 3838+50 to 3843+50
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----------|-----------------------------------------------|-----|------|
302       | Aggregate Base Course CL 5                    |     |      |
          | Site 3843+00 to 3846+10 (Widening)            | 856 | TON  |
          | Site 3846+14 to 3846+46 (Full Depth)          | 121 | TON  |
          | Site 3846+50 to 3846+79, R (Path)             | 141 | TON  |
          | Site 3846+75 R (Driveway)                     | 184 | TON  |
          | Site 3843+50 to 3844+30 (Sidewalk)            | 31  | TON  |
302       | Aggregate Surface Course CL 5                 |     |      |
          | Site 3846+16 to 3846+19 (Widening)            | 786 | TON  |
          | Site 3846+24 to 3846+45 (Full Depth)          | 31  | GAL  |
          | Site 3846+50 to 3846+79, R (Path)             | 30  | GAL  |
          | Site 3846+75 R (Driveway)                     | 30  | GAL  |
401       | Tack Coat                                     |     |      |
          | Site 3843+50 to 3846+50 (Overlay)             | 91  | TON  |
          | Site 3846+14 to 3846+46 (Full Depth)          | 31  | GAL  |
          | Site 3846+50 to 3846+79, R (Path)             | 2   | GAL  |
          | Site 3846+75 R (Driveway)                     | 41  | GAL  |
430       | Superpave FAA 46                              |     |      |
          | Site 3843+50 to 3846+10 (Widening)            | 158 | TON  |
          | Site 3846+14 to 3846+46 (Full Depth)          | 43  | TON  |
          | Site 3846+50 to 3846+79, R (Path)             | 8   | TON  |
          | Site 3846+75 R (Driveway)                     | 50  | TON  |
430       | PG 58H-28 Asphalt Cement                      |     |      |
          | Site 3843+50 to 3846+50 (Overlay)             | 9.5 | TON  |
          | Site 3846+14 to 3846+46 (Full Depth)          | 2.6 | TON  |
          | Site 3846+50 to 3846+79, R (Path)             | 0.5 | TON  |
          | Site 3846+75 R (Driveway)                     | 2.7 | TON  |
750       | Sidewalk Concrete 4IN                        |     |      |
          | Site 3843+50 to 3848+150 (Widening)           | 146 | SY   |
430       | Detectable Warning Panels                     |     |      |
          | Site 3846+15 to 3846+16 (Rt)                  | 12  | SF   |
          | Site 3846+23 to 3846+24 (Lt)                  | 12  | SF   |
          | Site 3846+58 to 3846+60 (Rt)                  | 20  | SF   |
          | Site 3846+66 to 3846+68 (Lt)                  | 20  | SF   |

Note: Full depth replacement from Site 3846+74 to 3846+86 for the improvement of a 27' wide section. See ND DOT Standard Drawing D714-25 for installation details.
<table>
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<th>SPEC CODE</th>
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**LEGEND**

- SIN: HMA FAA 45 on 15IN CL 5
- 5IN HMA FAA 45 on 15IN CL 5

**ND 1806 Interchange**

Paving Layouts

Southwest Ramp (EX94SWR)

Sta 1013+00 to 1018+00 (EX94SWR)