## PLANS READING COURSE



# Wyoming Department of Transportation 

Project Development Program
Utility Section
Headquarters Building
5300 Bishop Blvd
Cheyenne WY 82009-3340

## OUTLINE

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## 'TITLLE SHEET' - unban



## 'II'TLE SHEE'T' - nubal



## TITLL SHEET' - runal pronect issuace



# MITLLE SHEETT - ubban proaft istance 

Plan Issuance



Project Information


JACKSON STREETS: BROADWAY FLAT CREEK - JACKSON ST. SECTION TETON COUNTY

Plan Set:
Issue Date:
Additional Issuance:

R/W and Utility
12/06/2011
With Utility Notes

Project Number: N104072 = new format
(Route No. $=$ ML10; Route Section No. $=4$; Sequence
No. = 072)
Project Name: Jackson Streets: Broadway
Section:
County:
Flat Creek-Jackson Street
Teton

## 'TIT'LLE SHEET' - maps

## Site Map



## Location Map



## 'TITLLE SHEET' - mural

## MILEPOST (M.P.) ADJUSTMENTS

Road realignments cause the distance between two points to change.
Rather than renumbering the entire road, a milepost equation is used. (Now called Reference Marker (R.M.) adjustments.


## REFERENCE MARKER SYSTEM <br> TYPICAL TREATMENT FOR <br> EQUATIONS


16.28 AH


EXTENDED DISTANCE

## LEGEND - plav sherts



## LEGEND - utmins

## UTILITY FEATURES

| ABOVE GRD. GAS | $-1$ | - ACG |  |
| :---: | :---: | :---: | :---: |
| ABOVE GRD. OIL |  | ロト $\longmapsto$ |  |
| ABOVE GRD. WATER |  | - |  |
| COMMUNICATION TOWER | 5 |  |  |
| FIRE HYDRANT | ? |  |  |
| GUY ANCHORS | * |  |  |
| MANHOLES | $\oplus$ |  |  |
| METER - ELECTRIC | (9) |  |  |
| METER - GAS | (3) |  |  |
| METER - WATER | (1) |  |  |
| OH COMB POWER/TELE POLE | -6- |  |  |
| OH FIBER OPTIC LINE |  | W |  |
| OH POWER LINE |  | OPW | - |
| OH POWER POLE |  |  |  |
| OH TELEPHONE LINE |  |  |  |
| OH TELEPHONE POLE | - |  |  |
| OH UNDEFINED UTILITY POLE | ...s... |  | 7 |
| POLE | - |  |  |
| PULL / JCT. BOX - FIBER OPTIC | $E 9$ |  |  |
| PULL / JCT. BOX - POWER | PV |  |  |
| PULL / JCT. BOX - TELEPHONE | [7] |  |  |
| PULL / JCT. BOX - TRAF. SIGNAL | T3 |  |  |
| PULL / JCT. BOX - TV | 9 |  |  |
| PULL / JCT. BOX - UNIDENTIFIED | 0 |  |  |
| SANITARY SEWER LIFT STATION | SSSA |  |  |
| SANITARY SEWER LINE. |  |  |  |



## STATIONING



## 



Stationing is usually called "Centerline Stationing" because the station line is usually drawn at the centerline of the highway.
$00+01$ equals 1 foot. $01+00$ equals $100^{\prime}$. $1045+15.75$ equals $104,515^{\prime}-9^{\prime \prime}$.
Urban Centerline Stationing with $25^{\prime}$ tick marks labeled at $100^{\prime}$ intervals $306+00$, $308+00$, etc.

Water line crossing at Station 307+07 is 7 feet from station 307+00 and 919', or 0.17 miles, from Begin Project (307+07 minus $297+88$ or $\left.30,707^{\prime}-29,788^{\prime}=919^{\prime}\right)$, which places the crossing at reference marker 154.164.

## SCALE RULER




## Rural Project



20 Scale; $1=100$ feet

Urban Project


10 Scale; $1=50$ feet

## S'I'TIIONING - continued (Rubal)



Example of Stationing drawn at the centerline of median on an Interstate highway.
$00+01$ equals 1 foot. $01+00$ equals $100^{\prime} .1045+15.75$ equals 104,515'-9"

Centerline Stationing with $100^{\prime}$ tick marks labeled at 500' intervals $306+00$, $308+00$, etc.

Water line crossing at Station $1561+82$ is 82 feet from station $1561+00$ and $13,682^{\prime}$, or 2.59 miles $(13,682 / 5280)$, from Begin Project ( $1561+82$ minus $1425+00$ or $156,182^{\prime}-142,500^{\prime}=13,682^{\prime}$ ), which places the crossing at reference marker 85.964.

## S'IATIONING - continued



Project length: 313+45.00 (End Project station) minus 297+88.00 (Begin Project station) $=1,557$ feet.
1,557 feet $/ 5,280$ feet $=0.30$ miles $(0.294886)$.

## VIEWS

- Plan

- Profile



## 管 <br> VIEWS - plan \& phofile sheet



## VIEWS - triplal sections -xxisting





## PLAN VIEW -continuid




## SLOPES

## 1:3 Slope

Number before colon is vertical distance in feet
Number after colon is horizontal distance in feet
Shown: Raise $\mathbf{1}^{\prime}$ vertically in $\mathbf{3}^{\prime}$ horizontal change
(or $1^{\prime}$ rise with $3^{\prime}$ run)

## CROSS-SECTIONS - legent-1



## CROSS-SECTIONS - - ${ }^{\text {gennh-2 }}$



## CROSS-SECTIONS - Legenn 3



##  <br> CROSS-SECTIONS - legend-4



咸 CROSS-SECIIONS


## CROSS SECTIONS - continued



## CROSS SECTIONS- continued




DIDIAS - PLAN VIEW


24 inch pipe with 2 flared ends crossing road at $40^{\circ}$ left skew at station 3126+64

24 inch pipe with 1 flared end and 1 M1 inlet crossing road at $19^{\circ}$ left skew at station $3131+60$

18 inch pipe with 2 flared ends under 16 foot approach on left side of road at station 3135+78

24 inch pipe with 2 flared ends crossing road at $42^{\circ}$ right skew at station 3136+83

See profile view for descriptions.

## PIPES - profies view



EASEMEN'IS/CONS'IRUCTION PERMI'S


## UTILITIIES- text notrs








## PUBLIC LAND SURVEY SYSTEM

| 36 | 31 | 32 | 33 | 34 | 35 | 36 | 31 | 32 | 33 | 34 | 35 | 36 | 31 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 6 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 2 | 1 | 6 |
| 12 | 7 | 8 | 9 | 10 | 11 | 12 | 7 | 8 | 9 | 10 | 11 | 12 | 7 |
| 13 | 18 | 17 | 16 | 15 | 14 | 13 | 18 | 17 | 16 | 15 | 14 | 13 | 18 |
| 24 | 19 | 20 | 21 | 22 | 23 | 24 | 19 | 20 | 21 | 22 | 23 | 24 | 19 |
| 25 | 30 | 29 | 28 | 27 | 26 | 25 | 30 | 29 | 28 | 27 | 26 | 25 | 30 |
| 36 | 31 | 32 | 33 | 34 | 35 | 36 | 31 | 32 | 33 | 34 | 35 | 36 | 31 |
| 1 | 6 | 5 | 4 | 3 | 2 | 1 | 6 | 5 | 4 | 3 | 2 | 1 | 6 |

## LAND SURVEY - SECHIONS



## LANID SURVEY - QUARTER SECIION



NE/2NW\%/Section 8

NW $1 /$ SW $/$ / Section 8

SW $\%$ SE $\%$ Section 8

SE $1 / 2 N E 1 / 4$ Section 8


SW $/$ NWW $/ 4$ Section 27

SE $1 /$ SW $/ /$ Section 27

NE / SEE / Section 27

NW $/ 2 N E 1 /$ Section 27

## IAND SURVEY -SECIION BREAKDOWNS



## LAND SURVEY - measurements

| $\begin{gathered} \text { N1/2 NW } 1 / 4 \\ \text { SW1/4 SW } 1 / 4 \\ 5 \text { ACRES } \end{gathered}$ |  | $\begin{gathered} w / 12 \\ \begin{array}{c} \text { NEF } \\ \text { sw } 1 / 4 \end{array} \end{gathered}$ | $\begin{array}{\|l\|} \hline \begin{array}{l} E / 1 / 2 \\ \text { NEF1/4} \\ \text { sw/ } 14 \end{array} \\ \hline \end{array}$ | NW1/4 SE1/4 | $\begin{aligned} & \text { NE1/4 } \\ & \text { SE1/4 } \end{aligned}$ | SW1/4 SE1/4 <br> 40 ACRES | SE1/4 SE1/4 <br> 40 ACRES <br> S.E. CORNER |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \hline \text { S1/2 NW1/4 } \\ \text { SW1/4 SW } 1 / 4 \\ 5 \text { ACRES } \end{gathered}$ |  | ${ }_{\substack{\text { sw } \\ \text { saches }}}^{\substack{4 \\ \hline}}$ | $\begin{aligned} & \text { swlid } \\ & \text { sACREES } \end{aligned}$ | SW1/4 <br> 10 ACRES | SW1/4 <br> 10 ACRES |  |  |
| $\begin{aligned} & 21 / 2 \\ & \text { ACCRES} \end{aligned}$ | ${ }_{\text {aches }}^{21 / 2}$ | SE |  | $\begin{aligned} & \hline \text { SW1/2 } \\ & \text { SE1/4 } \end{aligned}$ | $\begin{aligned} & \hline \text { SE1/2 } \\ & \text { SE1/4 } \end{aligned}$ |  |  |
| s.w. | ¢RNER | SW |  | SW1/4 10 ACRES | SW1/4 10 ACRES |  |  |



| A ROD IS $161 / 2$ FEET | A SQUARE ROD IS 272 $1 / 4$ SQUARE FEET |
| :--- | :--- |
| A CHAIN IS 66 FEET OR 4 RODS | AN ACRE CONTAINS 43,560 SQUARE FEET |
| A LINK IS $1 / 100$ OF A CHAIN OR 7.92 INCHES | AN ACRE CONTAINS 160 SQUARE RODS |
| A MILE IS 320 RODS. 80 CHAINS OR 5,280 FEET | AN ACRE IS ABOUT 2083/4FEET SQUARE |
|  | AN ACRE IS 8 RODS WIDE BY 20 RODS LONG - OR ANY TWO |
| TO REDUCE SQUARE FEET TO ACRES .000023 IS THE | NUMBERS ( OF RODS) WHOSE PRODUCT IS 160. |
| RECPIROCAL OF 43,560 |  |
| SQUARE FEET.MULTIPLY THE NUMBER OF SQUARE |  |
| FEET BY . 000023. OR MULTIPLY BY |  |
| 23 COUNT OFF SIX PLACES |  |

## LAND SURVEY - WYOMING



## MERIDIANS



Microsoft Illustration

Longitude


PRIME


## GLOBAL POSITIONING



## GOOGLE EAR'TH



## WYDOT ROUTE / MILEPOST



## GOOGLE EAR'TH OPTIONS

| Soogle Earth Pro |  |  |
| :---: | :---: | :---: |
| File Edit View | Tools Add Help |  |
| $\nabla$ Search | Ruler |  |
| Search Google | Table |  |
|  | GPS | arch |
| ex: Pizza near Cla | Movie Maker <br> Regionate | tory |
|  |  |  |
|  | Enter Flight Simulator... Ctri+Alt+A |  |
| $\nabla$ Places | Options... |  |
| + | arters | $\triangle$ |



## ADDING WYDOT'S KMZ FILE



3 Mileposts_HWY_FC_20160112.kmz



## ROU'TE/MP GPS



## GPS SEARCH

| SGoogle Earth Pro |  |
| :--- | :--- |
| File Edit View Tools Add Help |  |
| $\nabla$ Search |  |
| Search Google Parcel Search (APN) |  |
| $42.868496,-108.779494$ Search <br>   |  |



## LAND SURVEY - merminas



## LAND SURVEY - merminas



## CORRECTION FAC'I(OR



Coordinates are based on the Wyoming Coordinate System NAD 83/93, East Central Zone, and have been multiplied by a project factor of: 1.00023500. Labeled plan data (coordinates, curve data, bearings, distances and stationing) exceed survey accuracy. Existing land lines, property lines and easement lines not surveyed or tied to the alignment should be considered approximate. The vertical datum is NAVD 88.

## S'TATKMIS - FLAT BOTTIOM DITCHES



## S'IAKES - HLL



## STAKES - v ditch



## STAKES - maxugri section




## SUMMARY GENERAL NOTES

- Odd numbered Highways run North and South
- Even numbered Highways run East and West
- Reference Markers (RM) or Mileposts (MP) run West to East and South to North
- Centerline Surveys normally match RM or MP
- Land Surveys run East to West and South to North
- Electronic plans available (.dgn \& .dwg)


## AERIAL PHOTOS

- Are available for many projects.
- Many in color.
- Contact:

Photogrammetry \& Surveys
Wyoming Department of Transportation
5300 Bishop Blvd.
Cheyenne, WY 82009-3340
Phone: (307) 777-4498

FEDERAL LANDS AND INDIAN RESERVATIONS


I would like to thank Dave Hausmann of the South Dakota Department of Transportation for inspiring me to complete our state's version of his "Plans Reading Course" and for sharing his electronic version. I also want to thank Walt Scott, retired from the Montana Department of Transportation for sharing their state's version of "A Guide to Reading Montana Highway Plans."

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