

**OREGON
DEPARTMENT
OF
TRANSPORTATION**

Highway Division

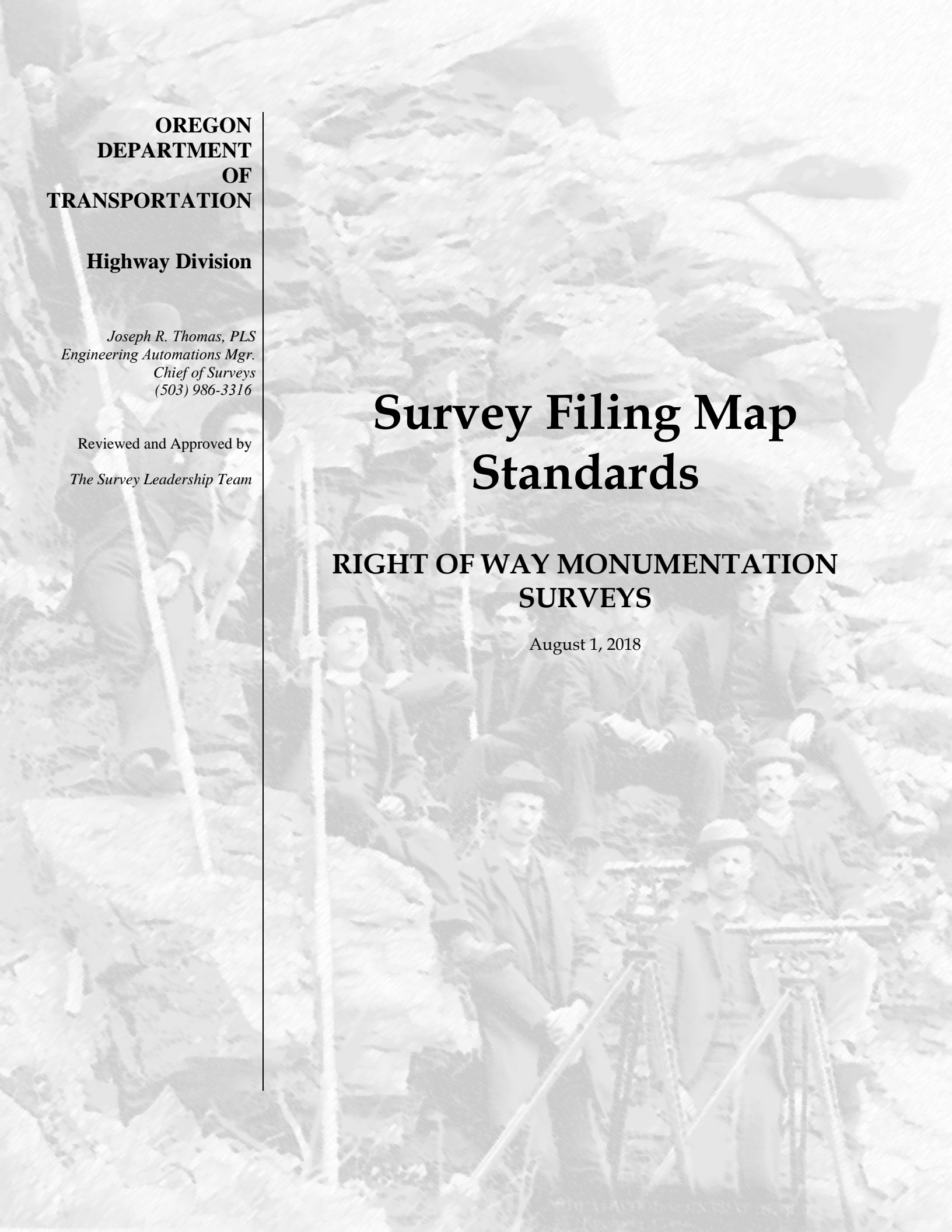
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Survey Filing Map Standards

**RIGHT OF WAY MONUMENTATION
SURVEYS**

August 1, 2018





Revision History

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First Release – September, 1999

Revised March, 2004

Revised February, 2005

Revised June, 2008

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Revised July, 2016

Paul Morin	Updated language in Note 24 and 29.
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Revised August 1, 2018

Paul Morin	Updated language throughout document per SLT review and recommendations
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Table of Contents

1.	ORS Requirements	1
2.	Linear units	1
3.	Definitions	1
4.	Sheet size	1
5.	Township, Range and Section Labels	1
6.	Text Size	1
7.	Text Case	1
8.	Text Fonts	2
9.	County Filing Information Space	2
10.	Legend	2
11.	Title Block	3
12.	ODOT logo and Scale Bar	4
13.	North Arrow	4
14.	Sheet Plan Layout	4
15.	Narrative	5-8
16.	Network/Traverse Data	8-9
17.	Network/Traverse Point Display	9
18.	Monument and Control Point Symbols	9
19.	Found Monument Display Standards	10
20.	Found Monument Table	10
21.	Set Monument Table	10
22.	Display of Bearing	10
23.	Display of Curve Data	11
24.	Display of R/W Widths	11-12
25.	Display of Alignments	12
26.	Alignment Stationing	12
27.	Government Boundaries	12
28.	Survey Ties to Government Corners	12
29.	Property Lines	12
30.	Deeds	12
31.	State Highway Names	12
32.	Street Names	12
33.	Rail Road R/W	12
34.	Topographic Features	13
35.	Gray Shading Option	13

Survey Filing Map Drafting Standards

[Right of Way Boundary Monumentation Survey Examples](#)

[Right of Way Network Monumentation Survey Examples](#)

This document is a guide to aid the Surveyor with filing map standards for ODOT Right of Way Monumentation Surveys.

1. Surveys filed will meet the requirement of this document in addition to the ORS (Oregon Revised Statutes) requirements for filing surveys. This document lists the minimum requirement for filing right-of-way Monumentation surveys for ODOT. If this document is silent on any item it is presumed to be optional and may be added if desired. Refer to the ODOT Survey Policy and Procedure Manual for additional requirements. Right-of-way Monumentation surveys will show the whole network schematic and control from the filed Control, Recovery, and/or Retracement map, however the individual sheets may be shortened to include only the area of new right of way.
2. All ODOT right-of-way Monumentation surveys will be filed in English units.
 - A) Show all linear values for retraced or measured dimensions.
3. Definition of Monumentation Survey Filing Maps: A monumentation survey that references right-of-way by the following two methods: (Refer to the ODOT Survey Policy and Procedure Manual)
 - A) Boundary option: The survey will show the location of the set monuments. The survey will show the relationship of the set monuments to the centerline of reference be it a resolved centerline or a new centerline.
 - B) Network option: Establish a permanent survey control network that references the right-of-way centerline and right-of-way boundary. This map shall identify the final control network, the resolved and/or new right-of-way centerlines, and boundary lines. A Monumentation Survey will show a diagram of the network and the information relating to the network. The r/w points need to have a point number, northing and easting, station and offset and description. See example on sheet 3 of 5.
4. ODOT will use 18" x 24" sheet size for survey filing maps.
5. Township, Range and 1/4 Section will be listed at the top center of each sheet for a heading. The first sheet should have all of the sections that the survey pertains to. All others sheets of the survey should have at least the 1/4 Sections with Township and Range that are represented on that sheet. DLC (Donation Land Claims) names and numbers will be listed on the sheets as applicable. See the "DRAFTING STANDARD EXAMPLES" (Sheet 1) for details.
6. The minimum text height on survey filing maps will be 0.10 inch.
7. All text will be upper case except for record units that require lower case as standard designation. Narrative text may be sentence case (upper and lower case) as long as the lower case text meets the minimum height of 0.10 inches.

8. The general breakdown of text fonts that may be used for the survey filing maps is as follows:

NOTE: USE THE ODOT SURVEY TASK MENU FOR CURRENT DRAFTING TASKS

Center line alignment text - ODOT Slant font 24 (different fonts may be used if showing more than one alignment)
 Bearing and distance ties - ODOT Slant font 24
 Property ownership names - ODOT Slant font 24
 Topographical annotation - ODOT Slant font 24
 Narrative text - ODOT Slant font 24
 Subdivision lot and block numbers - ODOT Slant font 24
 Subdivision names - ODOT Block font 42
 Existing right of way - ODOT Vertical font 2
 Government boundary text - ODOT Vertical font 2
 Tables and columnar text - ODOT Vertical Mono font 4
 All other text - ODOT Vertical font 2

See the “DRAFTING STANDARD EXAMPLES” (Sheet 4) for details.

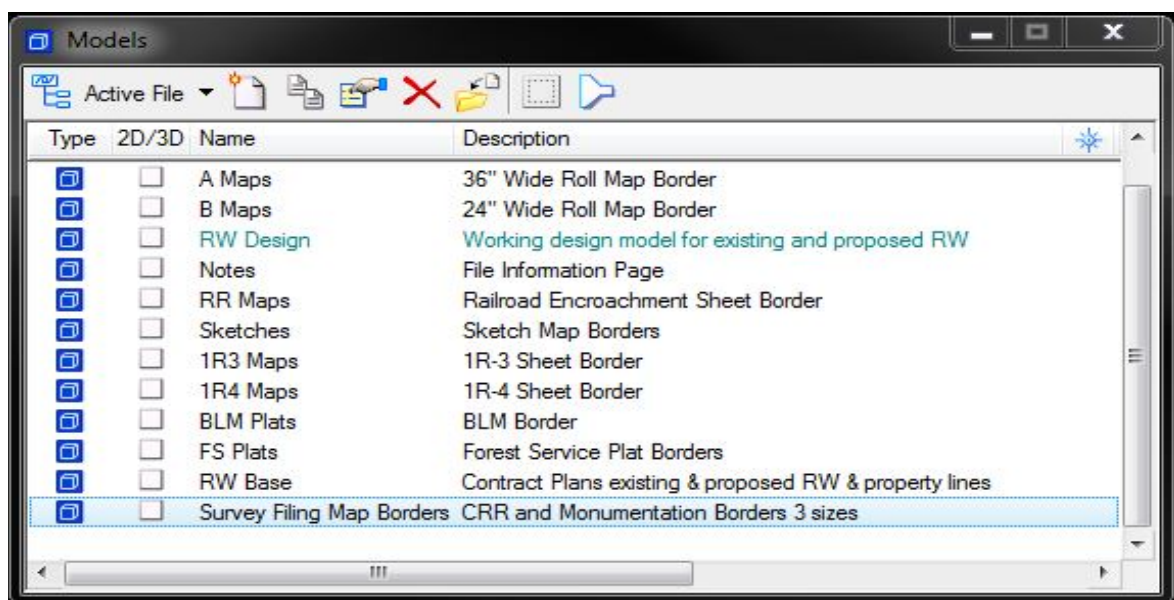
9. Space will be left to allow the counties to put their file numbers and other information on the survey.

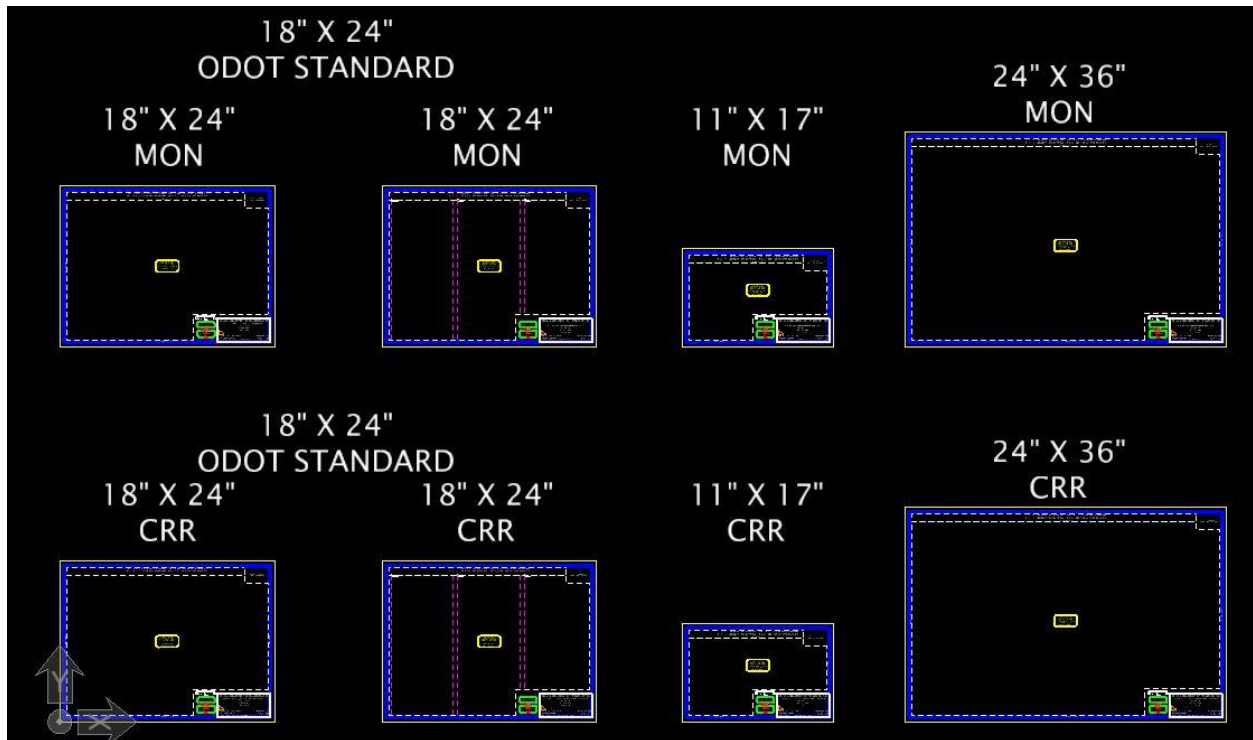
See the “DRAFTING STANDARD EXAMPLES” (Sheet 1) for details. Note:

10. Each map sheet will contain a legend for the unlabeled lines, symbols and abbreviations.

See the “DRAFTING STANDARD EXAMPLES” (Sheet 3, note 8.) for details.

NOTE: USE THE CURRENT BORDER CELLS LOCATED IN THE SeedRW2d.dgn FOUND IN THE ODOT WORKSPACE AND LOCATED IN THE SURVEY FILING MAP BORDERS MODEL.





11. Title Blocks will contain the following:

- A) "Oregon Department of Transportation"
- B) Type of survey: Right-of-Way Monumentation
- C) Project name (as listed in the project prospectus)
- D) State Highway name, State highway number, Oregon or US route number and mile point limits. Examples are: Cascade Highway South No. 160, OR213, M.P. 16.91 - 17.99; Sunset Highway No. 47, US26, M.P. 64.67 - 67.92.
- E) County
- F) Key Number and/or MicroStation file name
- G) Address of office filing the survey
- H) Date of survey filing
- I) Sheet number

See the "DRAFTING STANDARD EXAMPLES" (Sheet 3, note 9.) for details.

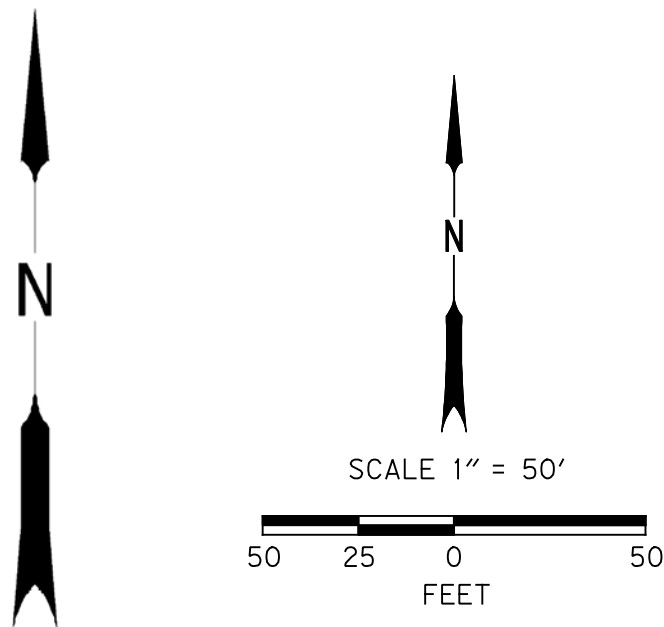
12. Each sheet will contain the ODOT logo located in the title block. For non-ODOT produced surveys, the contractor will place a company logo on each sheet.



13. Include a north arrow within each map sheet. Include a north arrow and a scale bar within each map sheet. Scales can be shown as 1" = 50'; 1" = 100'; etc. The scale will be shown with scale bar. See example below.

Note: For sheets that are not to scale, indicate this status on the sheet. A scale bar is not required on these sheets.

See "DRAFTING STANDARD EXAMPLES" (Sheet 1) for details.



14. Sheet Plan Layout: For large or complicated surveys include a sheet plan showing the organization or layout of each sheet along the survey. This is a quick reference showing where a sheet lies along the survey. On small surveys a simple index can be used, i.e.:

INDEX
SHEET 1 - NARRATIVE
SHEET 2 - PROJECT CONTROL SHEET
SHEET 3 - PROJECT MONUMENTATION

15. Narrative: Each narrative will be unique to the project and include the purpose, reference documents, alignment resolution, basis of stationing, basis of control, coordinates and network, survey work, dates and type equipment used. Information and examples follow:

A) PURPOSE: State the purpose of the survey; include what type of survey it is, where it is, and what project it is for.

Example (All Caps):

THIS SURVEY MONUMENTS THE CENTERLINE AND RIGHT-OF-WAY (R/W) ACQUIRED FOR THE CONSTRUCTION OF THE (PROJECT NAME) AN OREGON DEPARTMENT OF TRANSPORTATION (ODOT) PROJECT. THIS SURVEY IS LOCATED ON (HIGHWAY NAME) AT (NAME OF ROAD, ETC.) (NEAR OR BETWEEN, ETC.) THIS SURVEY IS BASED ON ODOT DRAWING NO.: DRG 10B-15-4, (DRAWING REVISION DATE), (CONSTRUCTION YEAR), ETC.

Example (Sentence Case):

This survey monuments the centerline and right-of-way (R/W) acquired for the construction of the (project name) an Oregon Department of Transportation (ODOT) project. This survey is located on (highway name) at (name of road, etc.) (near or between, etc.) This survey is based on ODOT Drawing No.: DRG 10B-15-4, (drawing revision date), (construction year), etc.

Note: Abbreviate RIGHT-OF-WAY as "R/W".

B) REFERENCE DOCUMENTS: List all of the reference documents that were used for this survey, such as ODOT Drawing Maps, Record of surveys, Subdivisions, and Deeds.

ODOT DRG 6B-8-5

(ODOT Right-of-Way, Located Line, and Constructed Line Maps are referred to as Drawing (DRG XX-XX-XX)).

RECORDED SURVEYS: CS 3573; PS 23094

(Each county has a different system for naming its surveys).

SUBDIVISIONS: Refer to any subdivisions or plats or partitions that were used to resolve the right-of-way. These should also be shown in the drafting.

DEEDS: List the deeds that were used to resolve the right-of-way centerline.

(Each county has a different system for naming its deeds).

Example:

REFERENCE DOCUMENTS USED: ODOT DRG 10B-8-22 AND CS 15516.

DEEDS USED: BK 213 PG 352; BK 213 PG 353; BK 213 PG 354; BK 117 PG 167; BK 152 PG 616; BK 91 PG 357; BK 213 PG 634; BK 137 PG 611; BK 190 PG 33.

AQCQUISITION DEEDS: BK 999 PG 105; BK 999 PG 353; BK 999 PG 354;

- C) **ALIGNMENT MONUMENTATION:** How and when monuments were set and what methods were used. The methods used such as radial coordinate stakeout, station and offset, reference, etc. Listed below is an example.

Example: (note this example is a combination of network and setting right-of-way monuments.)

THE BEGINNING OF THIS MONUMENTATION SURVEY IS AT STATION (STA) 104+01.28 PT, AND ENDS AT STA 135+77.84 PS BACK = STA 135+78.3 PS AHEAD ON HWY 99 W. THE ALIGNMENTS USED FOR THE NEW R/W WERE FROM THE RESOLVED R/W RECORDS OF SURVEY, POLK CO. SURVEY NUMBER 15516.

THE CONTROL NETWORK WAS AUGMENTED TO REPLACE NETWORK CONTROL POINTS DESTROYED DURING CONSTRUCTION. THE NETWORK WAS THEN ADJUSTED FROM LISCAD FIELD DATA USING LEAST SQUARES ADJUSTMENT SOFTWARE CONSTRAINED TO UNDISTURBED REMAINING CONTROL. THE RIGHT-OF-WAY MONUMENTATION WAS THEN ESTABLISHED UTILIZING ODOT RESOLVED ALIGNMENTS AND THE STATION AND OFFSET CALLS GIVEN ON ODOT DRAWING 10B-8-22. THE CALLS ARE RELATIVE TO THE CL OF HWY 99 W. R/W MONUMENTS WERE NOT SET ON THIS SURVEY. ALL R/W POINTS EXIST AS COORDINATES RELATIVE TO THE CONTROL NETWORK. THE R/W POINTS ARE LISTED IN THE COORDINATE TABLE AND CAN BE LOCATED USING THE CONTROL NETWORK ESTABLISHED.

THE MONUMENTS WERE SET BY RADIAL COORDINATE STAKEOUT FROM THE CONTROL NETWORK.

(This last sentence can be dropped if not setting any R/W monuments.)

- D) **BASIS OF BEARING:** The basis of bearing for the survey needs to be explained. Here are some examples of different types.

Examples:

THE BASIS OF BEARING WAS ESTABLISHED UTILIZING THE DATUM REALIZATION OF NAD 83(2011) EPOCH 2010.00. COORDINATES ARE PROJECTED TO THE OREGON COORDINATE REFERENCE SYSTEM (OCRS) XXXXXXXXX ZONE, INTERNATIONAL FEET.

PROJECTION DATA IS PROVIDED IN OAR 734-005-015.

GRID COORDINATE ZONE DISTANCES CLOSELY MATCH GROUND DISTANCE.

Or:

A CONTROL AND RECOVERY SURVEY (SN XXXXX) WAS FILED BY ODOT WITH VVVV COUNTY SURVEYOR'S OFFICE. THIS WAS USED FOR BEARING AND COORDINATE CONTROL FOR THE PROJECT

Or:

THE BASIS OF BEARING WAS ESTABLISHED BY HOLDING TWO GNSS STATIONS, "AAA" AND "BBB", FROM THE CITY OF XXX NETWORK.

Or:

THE BASIS OF BEARING WAS ESTABLISHED BY HOLDING TWO GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) STATIONS, "AAA" AND "BBB", SET BY ODOT GEOMETRONICS. THE DOCUMENTATION OF THESE GNSS STATIONS IS FILED WITH THE POLK COUNTY SURVEYOR'S OFFICE AS CS 12506.

Or:

THE BASIS OF BEARING WAS ESTABLISHED BY HOLDING 2 GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) POINTS, 9283-1 AND 9283-2. W & H PACIFIC SET THESE ON SEPTEMBER 2, 1997 AT THE REQUEST OF ODOT. THE DOCUMENTATION OF THESE GNSS STATIONS IS FILED WITH THE POLK COUNTY SURVEYOR'S OFFICE AS C.S. 12506.

Or:

THE BASIS OF BEARING IS BASED ON COUNTY SURVEY NO. XXXX FILED (survey date), in (County name) COUNTY, OREGON.

Or:

THE BASIS OF BEARING IS BASED ON ODOT DRG XX-XX-XX, DATED XX-XXX-XXXX.

Or:

THE BEARINGS ARE BASED ON THE OREGON COORDINATE SYSTEM (OCS) OF 1983 (1991 ADJUSTMENT), NORTH ZONE.

Note: When using the OCS or OCRS for base of bearing state the Datum Realization. For example:

DATUM REALIZATION OF NAD 83(2011) EPOCH 2010.00

Or:

THE BASIS OF BEARING WAS ESTABLISHED BY HOLDING 2 GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) POINTS, 9283-1 AND 9283-2. W & H PACIFIC SET THESE ON SEPTEMBER 2, 1997 AT THE REQUEST OF ODOT. THE DOCUMENTATION OF THESE GNSS STATIONS IS FILED WITH THE POLK COUNTY SURVEYOR'S OFFICE AS CS 12506.

- E) BASIS OF COORDINATES: State the coordinate system the survey is based on. It is preferable to use coordinates that are projected to an Oregon Coordinate Reference System (OCRS) low distortion projection zone. If Elevations are shown state the vertical datum used and bench marks held. There should be a statement that the elevations were correct at the time of the survey and that they should be field verified before use.

COORDINATES ARE PROJECTED TO THE OREGON COORDINATE REFERENCE SYSTEM (OCRS) XXXXXXXXXX ZONE, INTERNATIONAL FEET.

PROJECTION DATA IS PROVIDED IN OAR 734-005-015.

GRID COORDINATE ZONE DISTANCES CLOSELY MATCH GROUND DISTANCES.

F) SURVEY WORK: State the beginning and ending dates that the survey work was performed.

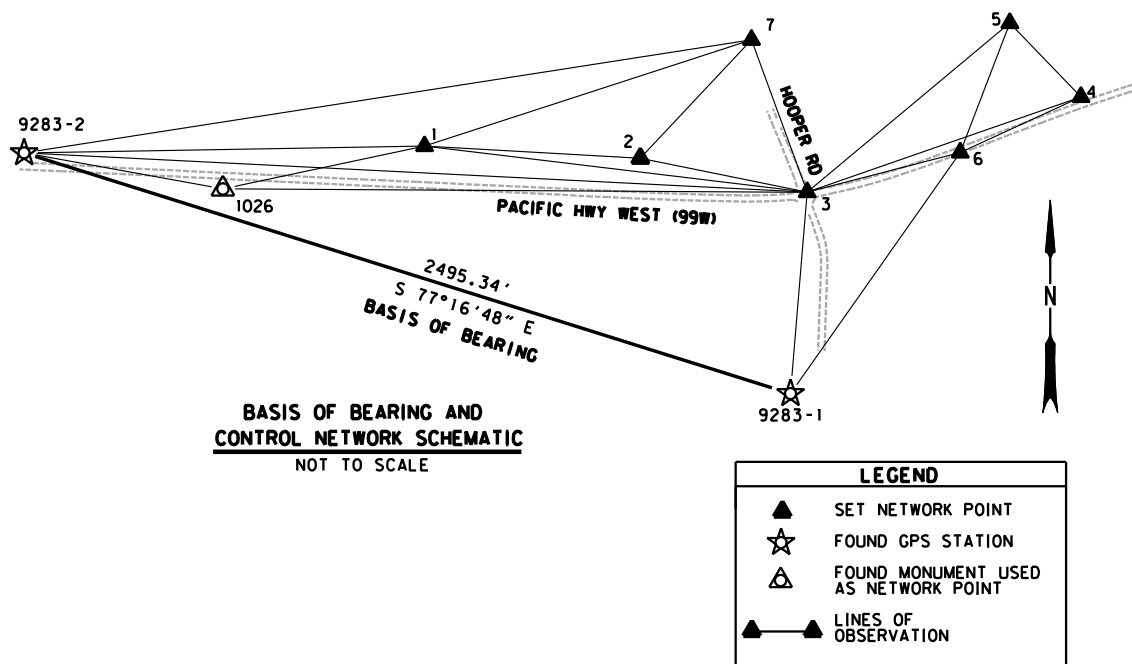
16. Network/Traverse: Show the network or traverse from which monuments were set. If this is a network control monumentation survey then show the network and its relationship to the new right-of-way.

A) Show a schematic diagram. This can be separate from the sheet orientation diagram or included with it.

B) Include the Basis of Bearing, note heavier line weight on Basis of Bearing line.

C) Show the lines of observation to each network point. (Or list them in a table if they are numerous.)

Note: This sketch is an example. The network schematic does not have to show edge of pavement. Showing some orientation information is useful but not required. The schematic shows the entire network and the lines of observation.



D) For a Monumentation survey, a table is preferred when the points are numerous. If there are a few points, the data may be entered at the point. The Network/Traverse Table should show the following:

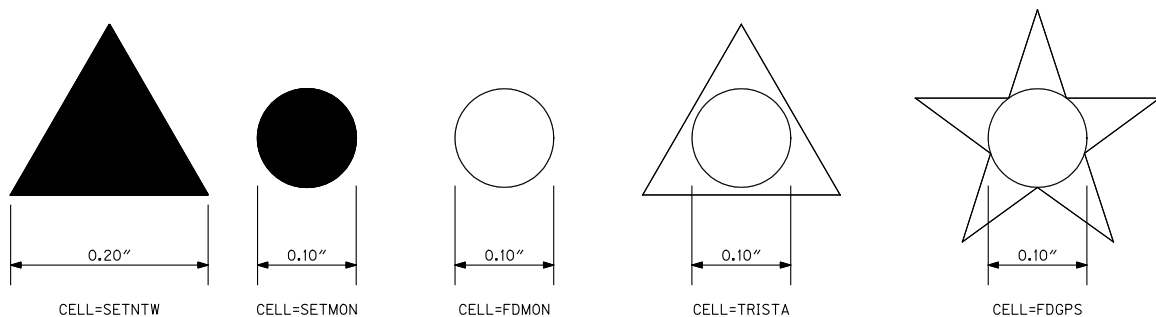
- (1) Point number
- (2) Coordinates (Level Circuit Elevations for control points may be shown).
- (3) Description of points set. (List ODOT or Consultant if they set the monument)

- (4) If a found monument is used, show the county survey number setting the found monument, or the oldest survey that references the position of the monument that a CS states was found, or state "origin unknown" or "UNK", or show any other reference to the monument found. Show whether the monument was found, disturbed or destroyed from the time of the Control, Recovery, and/or Retracement Survey. Make a statement in the narrative differentiating between points checked for position and those only checked for existence.
- (5) When using non industry standard abbreviations, a glossary should be provided, i.e. R.P.C. = Red Plastic Cap
- E) If the surveyor has knowledge that a monument has been destroyed it will be indicated on the map with an "X" through the monument symbol. (See examples below)



If the surveyor searched for but did not find network monuments it shall be noted in the narrative.

- F) New network monuments set during the monumentation phase will be numbered per ODOT standard. Do not re-use previously used point numbers even if the monument has been destroyed or not found.
17. The network/traverse points and point numbers should be shown on each individual sheet where they occur.
 18. All found monument and network control point cells or symbols should be no smaller than the common county requirement of 0.1".



19. The found monument symbol or other symbols that are not filled shall be shown on the map unobscured. If other data makes it obscure, then show a detail.
20. Found Monument Table: Create a found monument table if monuments are found:
- A) Before construction begins and after construction at the time of the new R/W monumentation, a search for monuments should be made for monuments set by others along the new R/W after the initial recovery for monuments. At monumentation stage, these ties shall be placed on the R/W monumentation map.
- B) All re-observed monuments for the monumentation survey shall be shown on the map. Refer to the ODOT Survey Policy and Procedure Manual and the ODOT Standards for Control/Recovery/Retracement maps for this section.
21. Set Monument Table: A table is preferred unless there are only a few monuments. The text for tables will be a mono spaced font (ft=4). A table template cell and a report template have been created for this purpose. A Monument Table should show the following headings (the date may be omitted if stated in the narrative):

**SET MONUMENT LIST AND
RIGHT-OF-WAY LOCATION TABLE**

PT ID	LDP NORTHING	LDP EASTING	STATION	OFFSET	DESCRIPTION
1014	440023.74	7469943.04	116+71.14	40.15' RT	SET 5/8" IRON ROD WITH YPC "ODOT" AT FND LOCATION CS 15516
5000	440020.68	7470082.89	118+11.02	40.00' RT	SET 1/8" BRASS DISK "ODOT R/W" IN BACK OF WALK

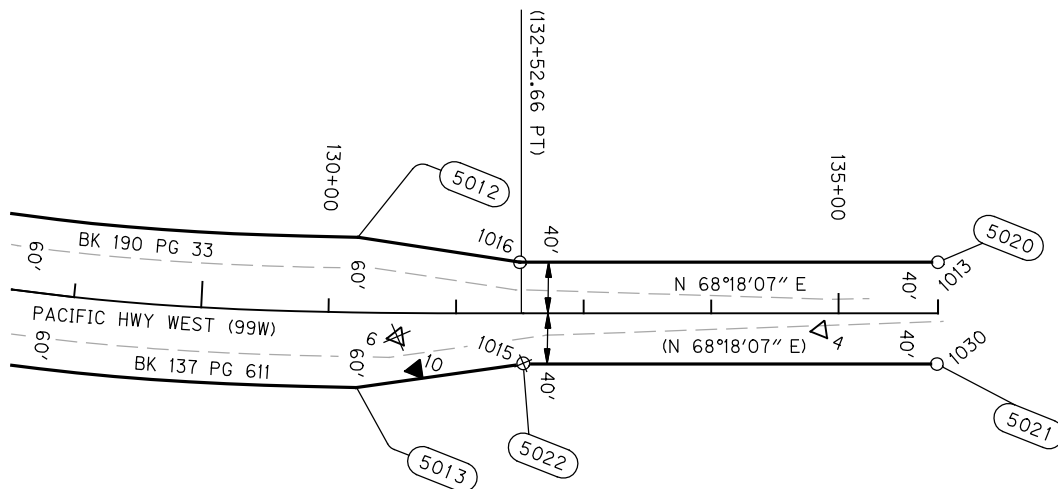
- A) Station:
List the computed station of monuments as they relate to the right-of-way recovery centerline.
- B) Offset:
List the offset distance and direction LT or RT of the right-of-way recovery centerline.
- C) Date:
List the date when the monument was tied.
- D) Descriptions:
Describe the size and type of monument set.
22. Bearing: The tangent bearing (PT to PC, or PT to PS) should show along the centerline. Show both record and resolved.

23. Curve Data: Show the following:

A) Resolved Data:

- Degree of Curvature
- Radius
- Δ (Delta Angle) for simple curves
- $T\Delta$ (Total Delta Angle) for curves with spirals
- T (Total distance from PC to PI)
- Ts (Total distance from PS to PI) (There could be a Ts1 ([in]) and a Ts2 ([out]) if there are different spiral lengths).
- Spiral Lengths
- S angle
- a value

B) Record Data (a statement may be substituted in the narrative for commonly held curve



data like degree of curvature and spiral length)

Duplicate all record data as noted on the record map such as:

- Degree of Curvature
- Radius (if present)
- Ts (Total distance from PS to PI) (There could be a Ts1 (in) and a Ts2 (out) if there are different spiral lengths).
- Δ (Delta Angle) for simple curves
- $T\Delta$ (Total Delta Angle) for curves with spirals
- Spiral Lengths

24. Right-of-Way Lines and Widths: Show new right of way lines. Show the new right-of-way line widths and the station at all changes in right-of-way. Show right-of-way widths at both ends of tangents on each sheet. New right of way taken as a highway right of way easement will be shown with the same line style and symbology as new right of way taken in fee. Easements other than a highway right of way easement will be shown with easement line

style. Do not show existing right of way within new right of way taken in fee or as a highway right of way easement.

25. Centerline: Show the right-of-way centerlines that property was acquired from. (Multiple alignments should be noted in different line styles and/or have unique labeling). Show the alignments with stationing, all centerline control points and PIs. List the coordinates at PIs , POTs, angle points and the ends of the alignment only.
26. Alignment stationing & offset distances should be shown in the direction ahead on line. All other drafting should follow the bottom/right rule. That is it should be easily read from the bottom or the right side if placed at bottom. The layout sequence for sheeting out of the pages should follow the stationing ahead on line. Exception: Section labels should be north oriented.
27. At a minimum, show all section lines, 1/4 section lines and Donation Land Claim lines. These lines will be shown even when the monumented corners defining these lines were not tied. Use deeds and other surveys to locate these lines. 1/16 lines will be shown when they pertain to the survey.
28. Show a calculated bearing and distance from a tied monumented section corner, one-quarter corner, one-sixteenth corner or Donation Land Claim corner in Township and Range, or to a monumented lot or parcel corner or boundary corner of a recorded subdivision, partition or condominium, to a point on the recovered centerline. (A section corner, one-quarter corner, one-sixteenth corner or Donation Land Claim corner is preferred)
29. Private Property Lines: Show all property lines abutting the Highway right-of-way in areas where right-of-way acquisitions have occurred. These lines will be placed graphically for distance and bearing according to surveys, plats, deeds, etc. Place the lines relative to the current project's basis of bearing. Do not show private property lines within new right of way taken in fee or as highway right of way easement.
30. Deeds: The deed recording information listed should be noted on the parcel that was acquired for the project. They can be shown in a table when a symbol is noted in the parcel.

See the "DRAFTING STANDARD EXAMPLES" (Sheet 4 note 7.) for details.
31. List the State Highway name. Examples are: Cascade Highway South, Sunset Highway.
32. List the names of cross streets on the sheets where they occur.
33. Show resolved railroad alignment, railroad right of way lines and encroachment easement lines as applicable

34. Topo features: The following items should be displayed if they have been surveyed or tied in the normal course of building a digital terrain model or base map. Extra effort should **NOT** be made to include topographical features that are not essential for the monumentation of the project.
- A) Significant bodies of water such as rivers, creeks, ponds and lakes. Also include their names.
 - B) New edge of roadway. (Gutter or edge of pavement)
 - C) Railroad tracks: If you display railroad tracks when they cross or are adjacent to the highway right-of-way, indicate in the narrative how the positions of railroad tracks were determined.
35. Mandatory features, text and other elements of the map shall be displayed in black and white. Only a few counties allow optional features such as existing topography to be gray shaded. Check with the County Surveyor.

Survey Filing Map Standards

RIGHT OF WAY BOUNDARY MONUMENTATION SURVEY EXAMPLE SHEETS

August 1, 2018

The survey filing map drafting standards documents provide examples of a typical survey, outlines the layout of each sheet, and the various standards required for ODOT surveys.

Right of Way Boundary Monumentation surveys satisfy ORS 209.155(2a) by monumenting the right of way center line and all right of way angle points. The following examples show the general sheet layout for a monumentation survey. Each sheet example also focusses on a specific portion of the standards as listed below:

Sheet	Subject
1.	Narrative, Sheet Layout
2.	Network Schematic
3.	Cells and Symbol Standards
4.	Text Standards
5.	Common Line Standards
6.	Center line monuments and center line reference monuments

Revision History

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Scott Morrison	Geometronics
Festus Obijiofor	Region 1
Evan Burroughs	Region 2
Marshall Wagstaff	Region 3
Robert Butler	Region 5

Revised November,
2008 Scott Morrison

Geometronics

– Corrected blunders in title block as shown on example sheets

Revised Aug. 1, 2018

Paul J. Morin Geometronics

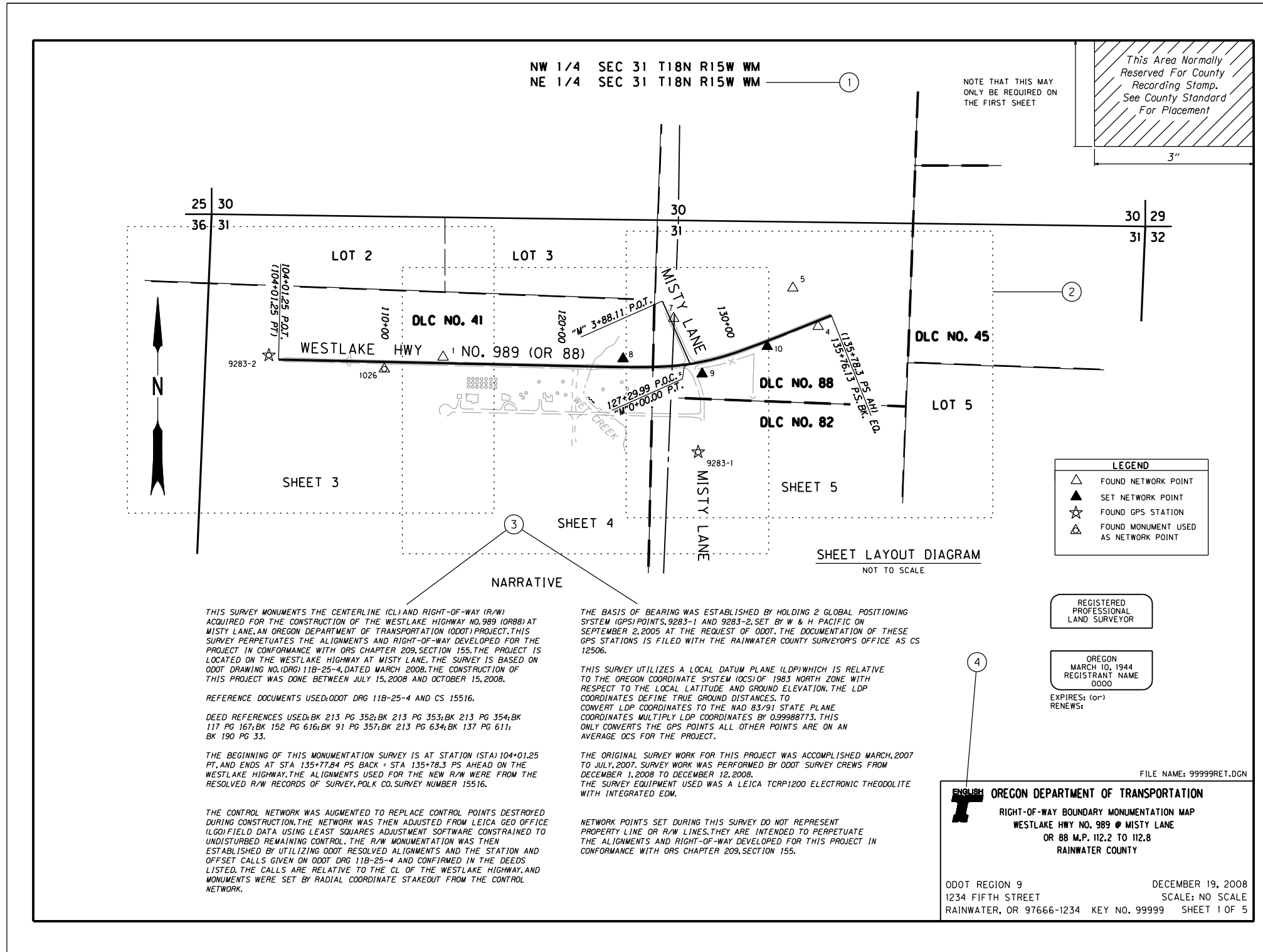
– Updated language throughout document per SLT review and recommendations

Sheet 1 - Technical Information Sheet

This sheet contains the survey narrative along with a sheet layout diagram of the survey project. This option shows the narrative in all capitol letters. Minimum size of the narrative text is 0.10 inch upon plotting. The use of sentence case letters (upper and lower case) is allowed if the lower case letters meet the minimum text height. See the [Right of Way Monumentation Surveys](#) written standards for details. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

1. Exception to text size standard. This required information may be larger depending on aesthetics and available space. Include all One quarter sections on this sheet. Other sheets may be limited to 1/4 section information for that sheet.
2. Sheet layout illustration. This can facilitate navigating between sheets in large surveys.
3. Survey narrative. Details regarding the content of the survey narrative can be found in the written portion of these standards.
4. ODOT Flying Tee logo to be used for ODOT produced drawings only. This logo is not to be used for consultant produced drawings.

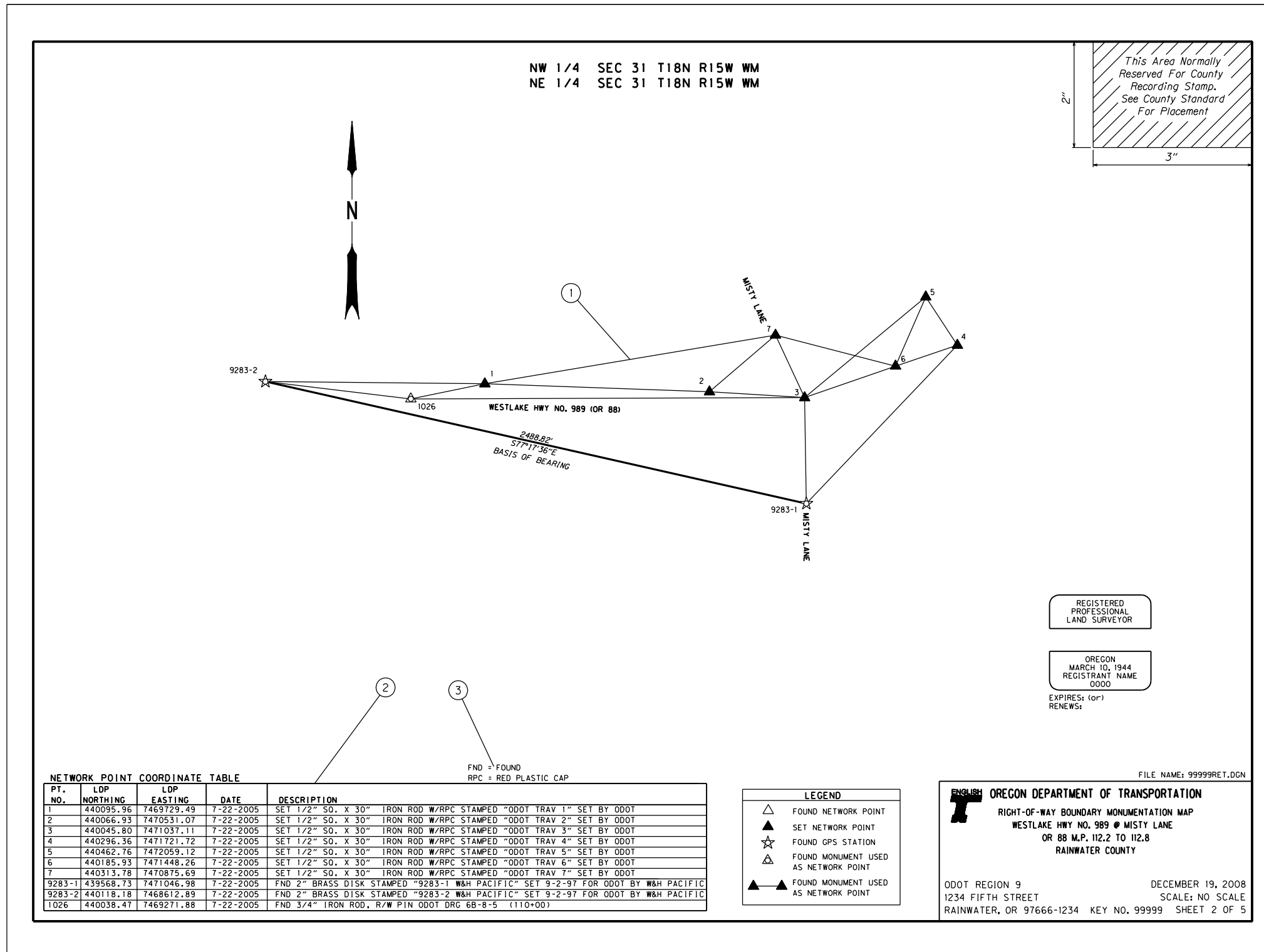


Sheet 2 - Network/Traverse Data

This sheet contains a simple schematic showing the network control points with their lines of observation. The heavier basis of bearing line is not necessary if using Real Time Kinematic (RTK) GPS survey techniques. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

1. Network Control Schematic. Scale and modify shape to fit available space on the sheet. Include roadway names or alignment features to aid in orientation. Observation line for the basis of bearing shall be shown with a heavier weight.
2. Control Point Description Table.
Cell Name: NETTBL
Level Name: E_SURV_MAPS_General
3. Abbreviation definition required only if abbreviation is not industry standard.

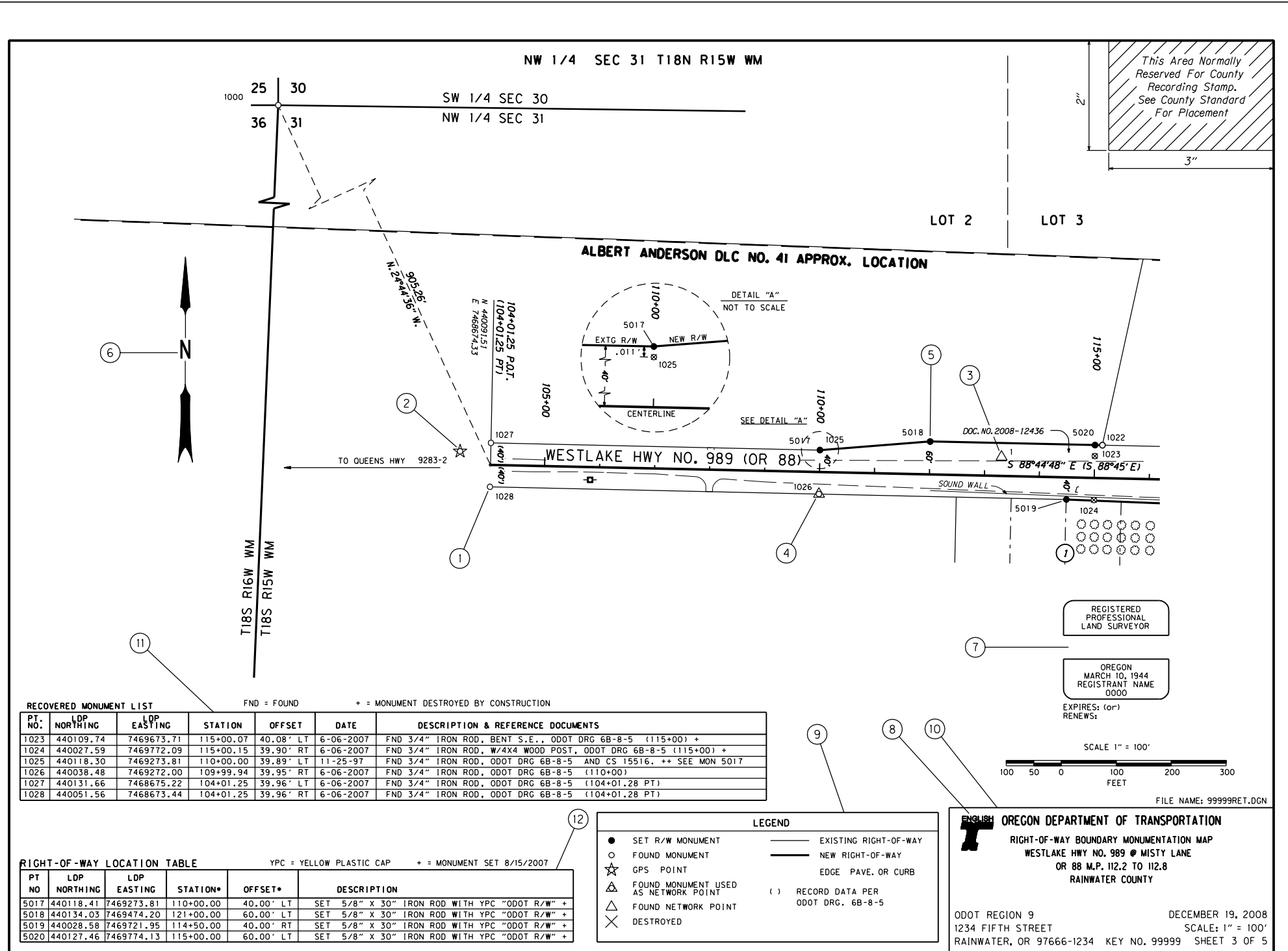


Sheet 3 - Common Cell Symbols Used

This sheet shows common cell symbols used boundary monumentation surveys. Title block, Legends, tables, etc. are shown in approximate positions and may be adjusted according to the needs of the sheet. All cells shown on this page are found in the Cadastral cell library and can be accessed from the Cadastral drafting menu unless otherwise noted. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

1. Found Monument Cell. For monuments recovered during this survey.
Cell Name: FDMON
Level Name: E_SURV_MON_FdMon
Color: 4 Weight: 1
2. Found GPS Station Cell.
Cell Name: FDGPS
Level Name: E_SURV_MON_FdGPS
Color: 0 Weight: 1
3. Found Traverse/Network Point Cell.
Cell Name: FDNTW
Level Name: E_SURV_NTW_FdNTWPt
Color: 3 Weight: 1
4. Found Monument Used As A Traverse/Network Point Cell.
Cell Name: TRISTA
Level Name: E_SURV_NTW_FdTriSta
Color: 0 Weight: 1
5. Set Monument.
Cell Name: SETMON
Level Name: E_SURV_MON_SetMon
Color: 4 Opaque Fill Color: 4
6. North Arrow Cell.
Cell Name: ARROW
Level Name: P_ODOT_PLAN_General
Color: 6 Opaque Fill Color: 6
7. Generic PLS Stamp Cell.
Cell Name: PLS
Level Name: P_ODOT_PLAN_ProfStamp
P_ODOT_PLAN_ProfStampTx
Color: 3
8. ODOT Flying Tee Logo For English Surveys.
Cell Name: ENGLISH TEE
Level Name: E_SURV_MAPS_General
Color: 4 Opaque Fill Color: 4
9. Symbol Legend Cell. Edit the cell to include only symbols appropriate for the particular sheet.
Cell Name: LEGEND_SFM
Level Name: E_SURV_MAPS_General
10. Generic Survey Filing Map Title Block Cell.
Cell Name: TBLOCK_SFM
Level Name: E_SURV_MAPS_General
11. Recovered Monument Table Cell.
Cell Name: MONTBL
Level Name: E_SURV_MAPS_General
12. Right Of Way Location Table Cell.
Cell Name: RWTBL
Level Name: E_SURV_MAPS_General



Sheet 4 - Sheet Text Standards

All text when plotted at 1"=100' scale, shall have a minimum height and width of 0.10 inch (Tx=10). Text fonts used will be ODOT vertical font 2, ODOT vertical Mono font 4, ODOT slant font 24 and ODOT Block font 42. The ODOT drafting menus will automatically load the correct text symbology for any particular item. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

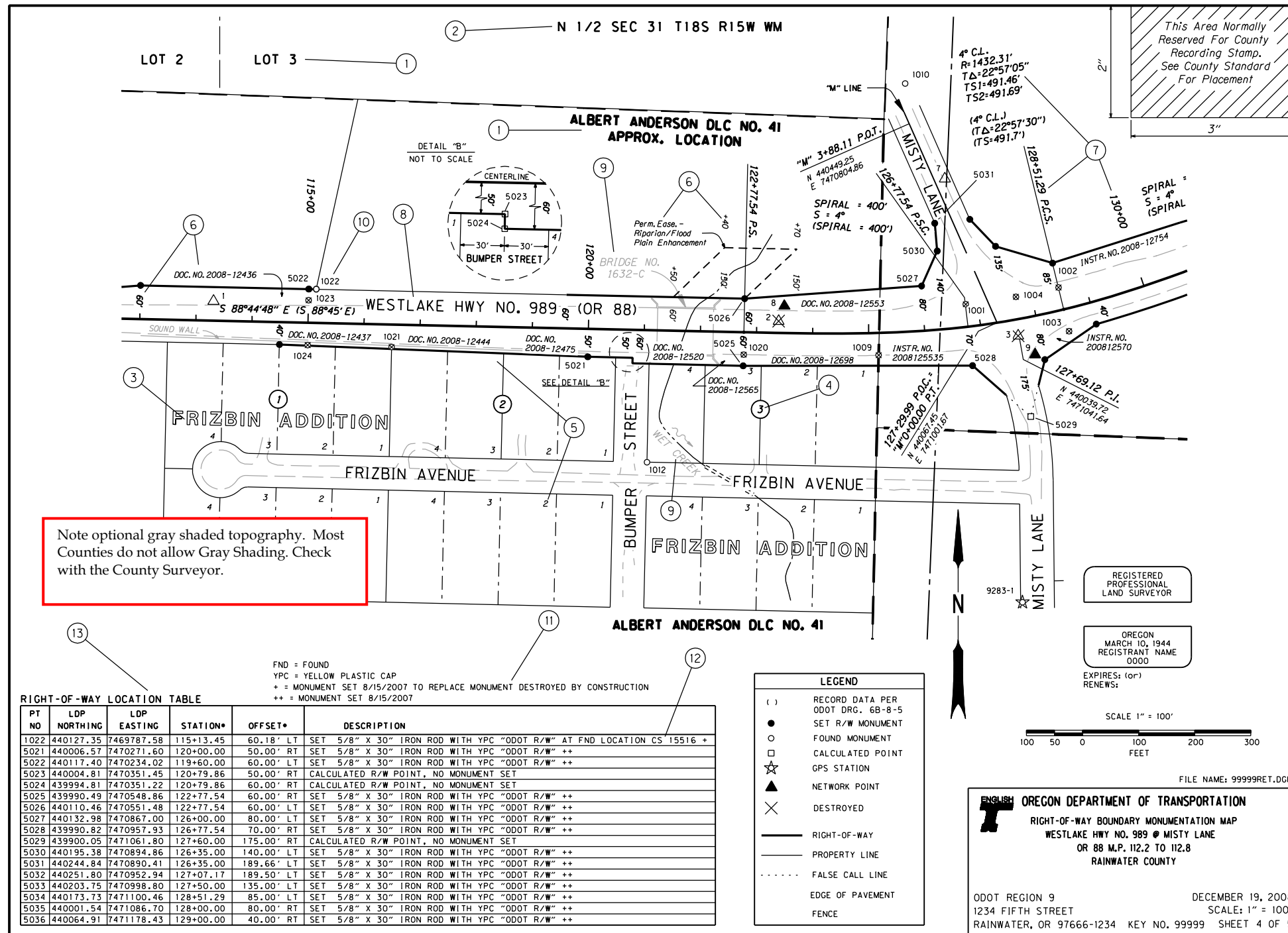
General breakdown of text fonts:

- Center line alignment text - ODOT Slant font 24 (different fonts may be used if showing more than one alignment)
- Bearing and distance ties - ODOT Slant font 24
- Property ownership names - ODOT Slant font 24
- Topographical annotation - ODOT Slant font 24
- Narrative text - ODOT Slant font 24
- Subdivision lot and block numbers - ODOT Slant font 24
- Subdivision names - ODOT Block font 42
- Existing right of way - ODOT Vertical font 2
- Government boundary text - ODOT Vertical font 2
- Tables and columnar text - ODOT Vertical Mono font 4
- All other text - ODOT Vertical font 2

Some fonts found in cells such as the title block and PLS stamp do not totally conform to the above standards.

Text sizes shown below are based on a 1"=100' plot, CAD active scale AS=2

1. Government Line Labels (Township, Section, Quarter section, Government Lot, and DLC: Ft=2, Tx=16)
2. Township/Range/Section Sheet Header (same as Government line labels).
3. Subdivision Name: Ft=42, Tx=24 or 36 depending on appearance.
4. SUBDIVISION BLOCK NUMBERS: Ft=24, Tx=12
5. Subdivision Lot Numbers: Ft=24, Tx=10
6. Right Of Way Data (including station and offsets, easement text, recorded deed reference numbers) : Ft=24, Tx=10
7. Center Line Alignment Data (stationing, tangent bearings, control points, curve data including spirals): Ft=24, Tx=12
8. Street And Road Names: Ft=2, Tx=18.8
*This text is found on the Existing drafting menu.
9. Topographical Feature Labels: Ft=24 (text size varies)
*Topographical features are found on the Existing drafting menu.
10. Point Numbers (Network points, R/W monuments, GPS stations, etc.): FT=2, Tx=10
11. Notes: Ft=2
12. Text In Tables: Ft=4
13. Various Table And Column Headings: Ft=2 or 4

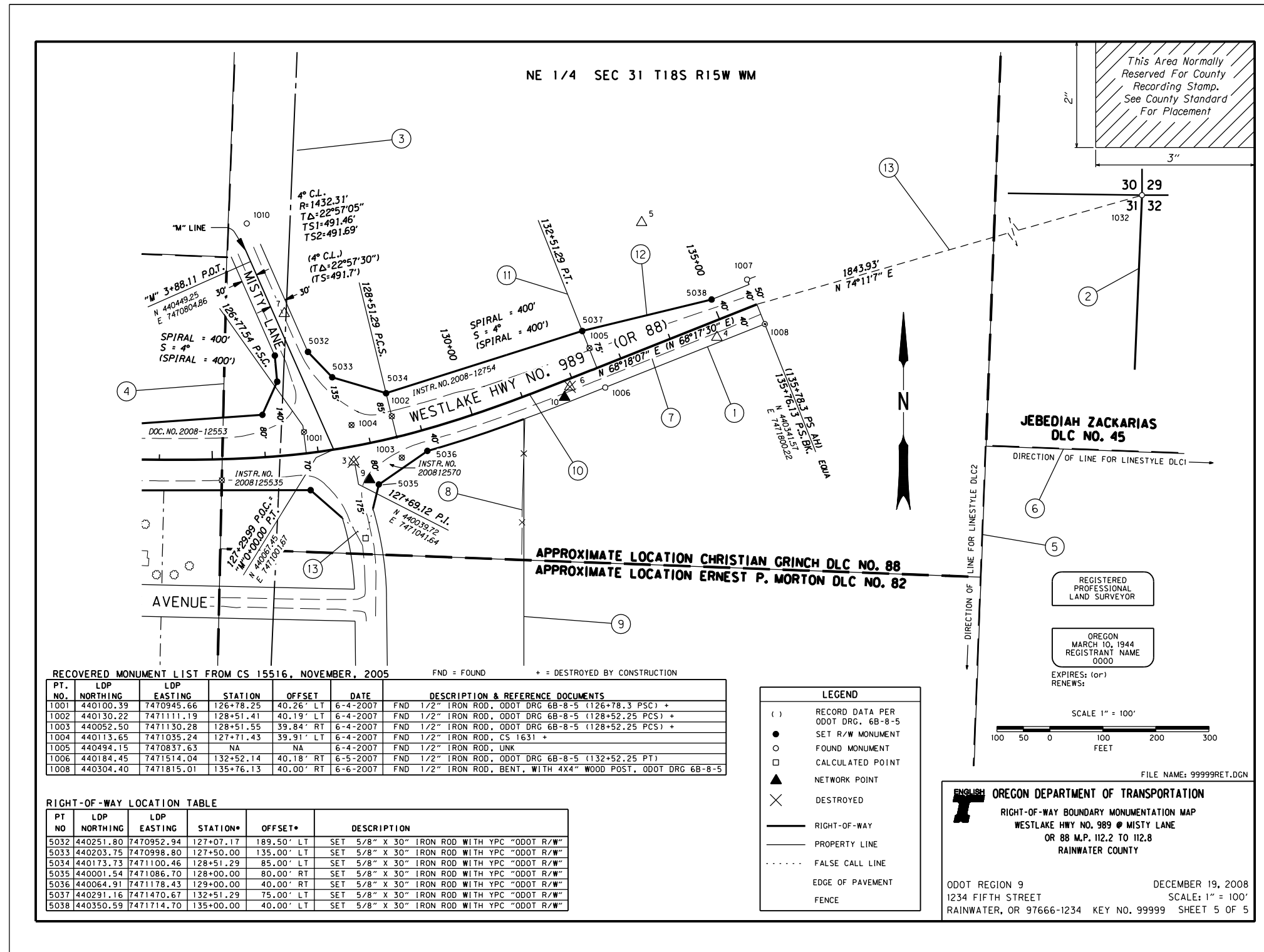


Sheet 5 - Common Line Standards

This sheet shows the various line styles used on ODOT drawings. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

- Existing Street/Highway Right Of Way Line.
Level Name: E_SURV_BNDRY_ROW E_SURV_BNDRY_SROW*
Color: 4 Line Style: 0 Weight: 4**
* Use this level for stand along CAD files or when not using pen tables to increase line weight upon plotting.
** As plotted attributes.
- Section Line.
Level Name: E_SURV_BNDRY_GovSectionLine
Color: 6 Line Style: 0 Weight: 3
- Quarter Section Line.
Level Name: E_SURV_BNDRY_GovQuartSectLine
Color: 6 Line Style: quarter_V8 Weight: 2
- DLC Line With Claim On Both Sides.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc3_V8 Weight: 1
- DLC Line With Claim On Right Side Only.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc2_V8 Weight: 1
- DLC Line With Claim On Left Side Only.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc1_V8 Weight: 1
- Edge Of Asphalt Pavement. *Found on Existing drafting menu
Level Name: E_RDWY_ROAD_EdgeAsph
Color: 2 Line Style: 3 Weight: 1
- Fence Line. *Found on Existing drafting menu
Level Name: E_RDWY_ROAD_Fence
Color: 2 Line Style: fence_CE_V8 Weight: 1
- Property Line.
Level Name: E_SURV_BNDRY_Property
Color: 4 Line Style: 0 Weight: 1
- Resolved Center Line.
Level Name: E_SURV_ALIGN_Main
Color: 3 Line Style: 0* Weight: 5
* Other line styles may be used for multiple alignments.
- Control Point Flag *
Level Name: E_SURV_ALIGN_MainTx
Color: 0 Line Style: 0 Weight: 1
*Control point flag is preset in InRoads preferences.
- New Right Of Way Line (Fee Take)
Level Name: P_RW_FEE_Normal
Color: 0 Line Style: 0 Weight: 4*
*As plotted attributes.
- Tie To PLSS Corner
Color: 0 Line Style: 2 Weight: 1
- False Call Line *
Level Name: **
Color: ** Line Style: 1 Weight: 1
* False calls are used when the new right of way line crosses an unresolved right of way or property line.
**The level name and color of the false call will match the level and color of the new right of way line.

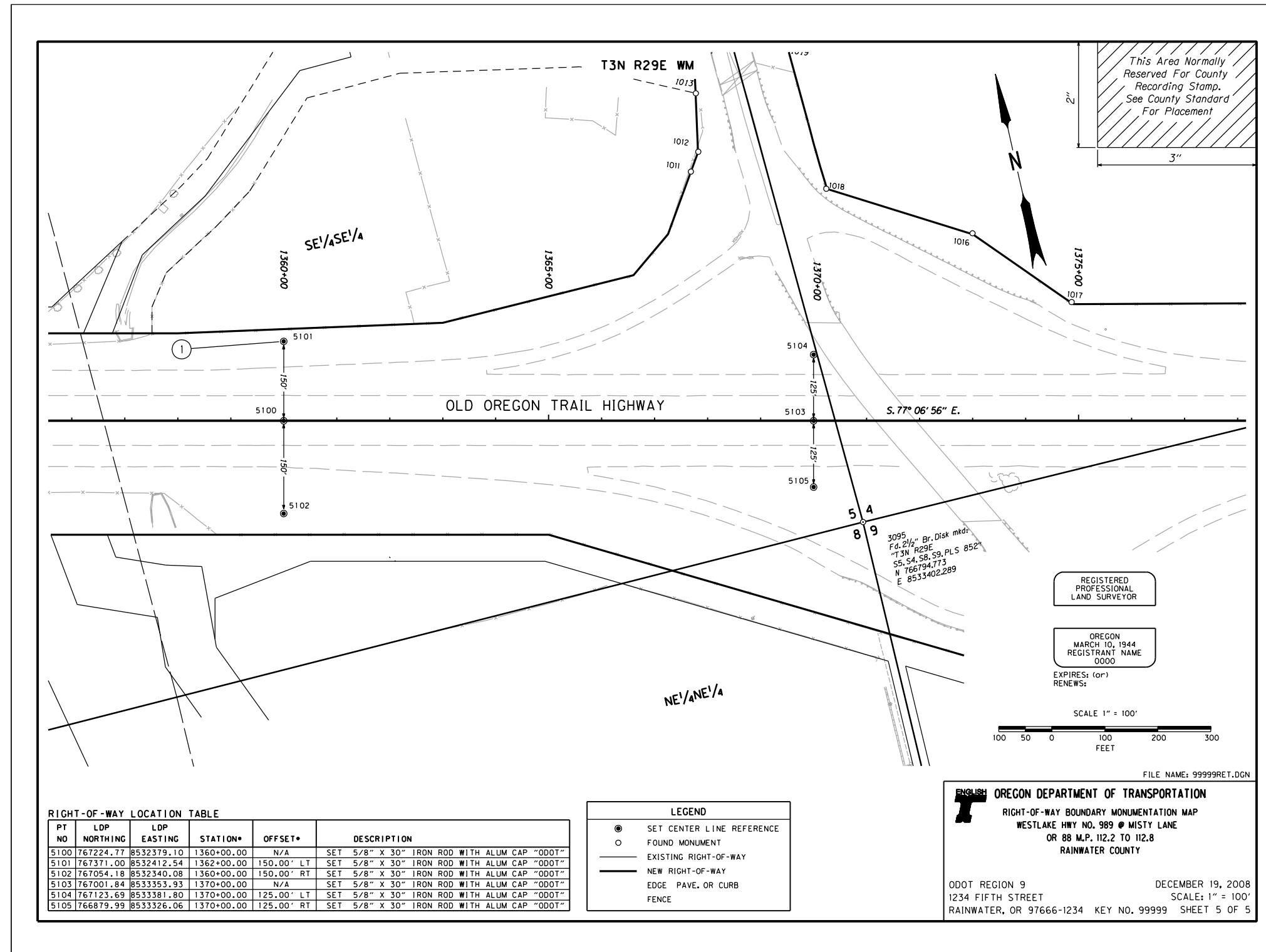


Center line and center line reference monuments

This sheet illustrates the method for showing monuments set on the highway center line or monuments set as references to the center line that do not fall on the right of way line. The center line monument uses a different cell symbol to separate it from other set monuments. Center line and center line reference monuments shall not be set within the traveled way of a road or highway, but only on shoulders or medians that do not see traffic. See [ODOT Survey Policy and Procedure Manual](#) for further details on monumentation.

Notes and Explanations

- Set Center Line And Center Line Reference Monument Cell.
 Cell Name: SETCLMON
 Level Name: E_SURV_MON_SetCLMon
 Color: 4 Weight: 1



Survey Filing Map Standards

RIGHT OF WAY NETWORK

MONUMENTATION SURVEY EXAMPLE SHEETS

August 1, 2018

The survey filing map drafting standards documents provide examples of a typical survey, outlines the layout of each sheet, and the various standards required for ODOT surveys.

Right of Way Network Monumentation surveys satisfy ORS 209.155(2b) by establishing a control network that references the controlling center line and new right of way. The following examples show the general sheet layout for a network monumentation survey. Each sheet example also focusses on a specific portion of the standards as listed below:

Sheet	Subject
1.	Narrative, Sheet Layout
2.	Network Schematic
3.	Cells and Symbol Standards
4.	Text Standards
5.	Common Line Standards

Revision History

Authored by

Survey Technical Advisory Committee

Ron Hamilton	Region 1
Roger Galles	Region 1
Dan Bissell	Region 2
Chris Blevins	Region 3
Jules Wetzel	Region 4
Ken Eddy	Region 5
Charlie Middleton	R/W Engineering
David Artman	Geometronics
Dave Brinton	Geometronics

First Release – September, 1999

Revised March, 2004

Revised February, 2005

Revised June, 2008

Scott Morrison	Geometronics
Festus Obijiofor	Region 1
Evan Burroughs	Region 2
Marshall Wagstaff	Region 3
Robert Butler	Region 5

Revised November, 2008

Scott Morrison	Geometronics	– Corrected blunders in title block as shown on example sheets
----------------	--------------	--

Revised August 1, 2018

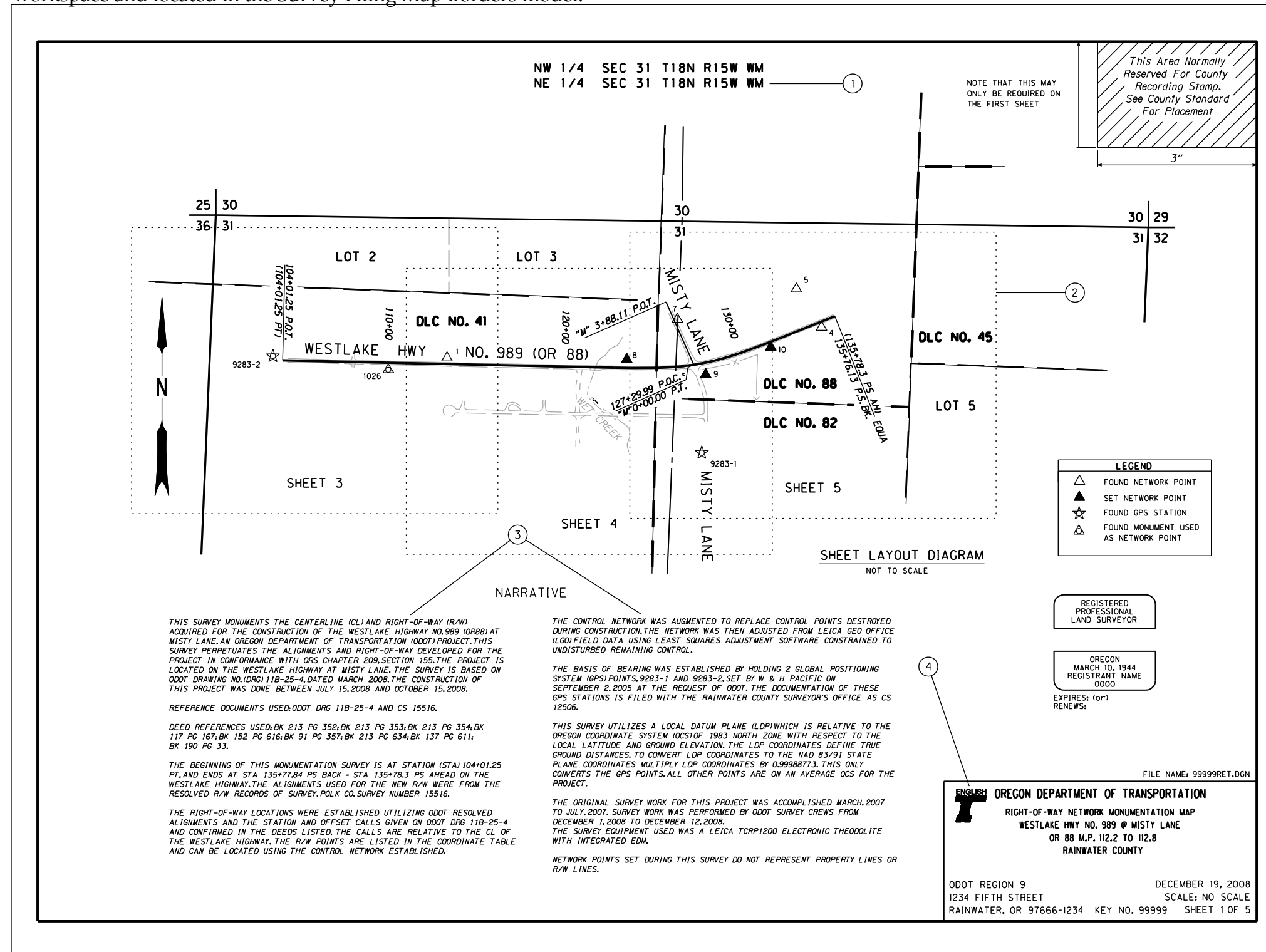
Paul J. Morin	Geometronics	– Updated language throughout document per SLT review and recommendations.
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Sheet 1 - Technical Information Sheet

This sheet contains the survey narrative along with a sheet layout diagram of the survey project. This option shows the narrative in all capitol letters. Minimum size of the narrative text is 0.10 inch upon plotting. The use of sentence case letters (upper and lower case) is allowed if the lower case letters meet the minimum text height. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

1. Exception to text size standard. This required information may be larger depending on aesthetics and available space. Include all 1/4 sections on this sheet. Other sheets may be limited to 1/4 section information for that sheet.
2. Sheet layout illustration. This can facilitate navigating between sheets in large surveys.
3. Survey narrative. Details regarding the content of the survey narrative can be found in the written portion of these standards.
4. ODOT Flying Tee logo to be used for ODOT produced drawings only. This logo is not to be used for consultant produced drawings.

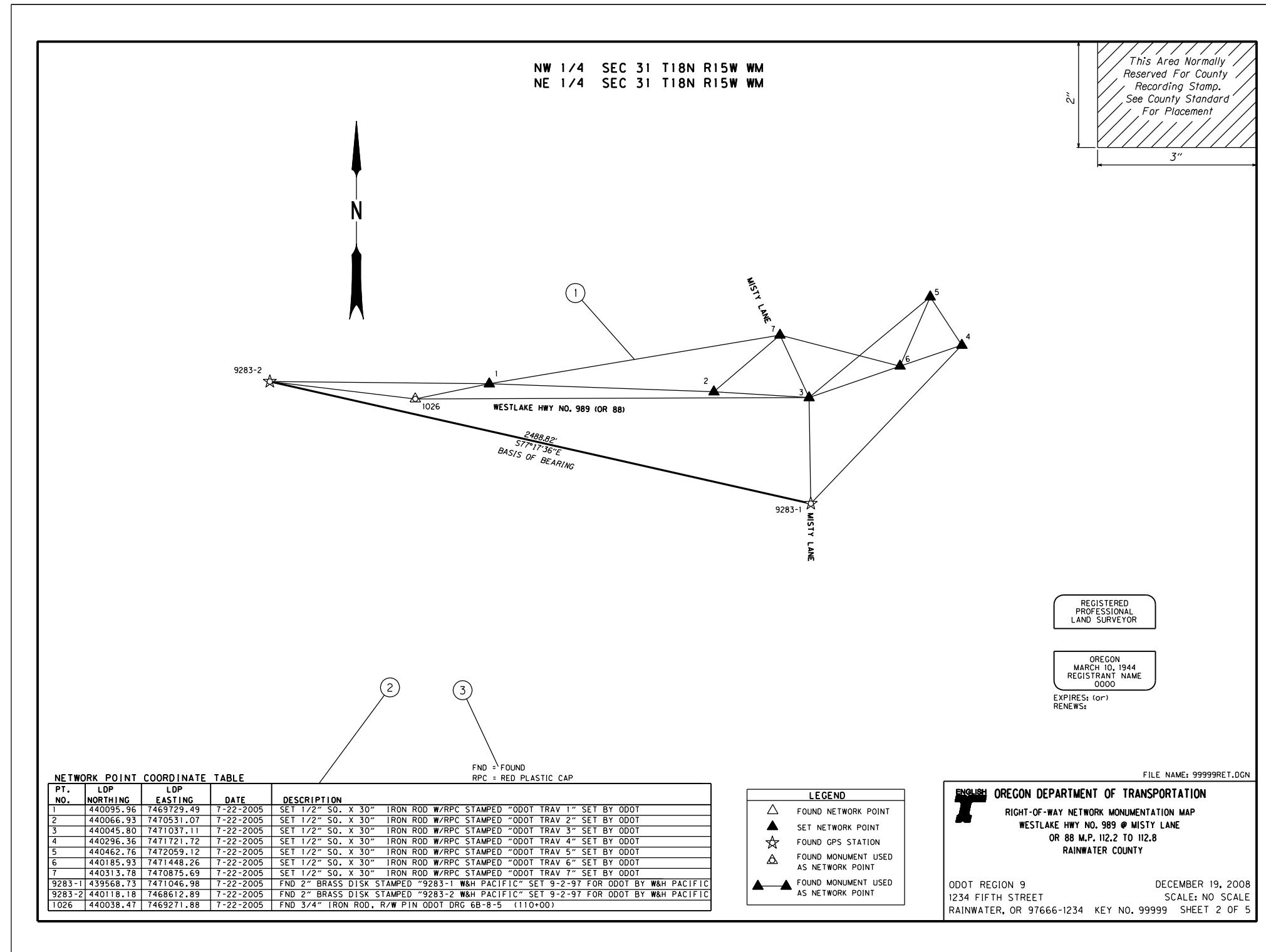


Sheet 2 - Network/Traverse Data

This sheet contains a simple schematic showing the network control points with their lines of observation. The basis of bearing shall be shown with a heavier weight line. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

1. Network Control Schematic. Scale and modify shape to fit available space on the sheet. Include roadway names or alignment features to aid in orientation. Observation line for the basis of bearing shall be shown with a heavier weight line.
2. Control Point Description Table.
Cell Name: NETTBL
Level Name: E_SURV_MAPS_General
3. Abbreviation definition required only if abbreviation is not industry standard.

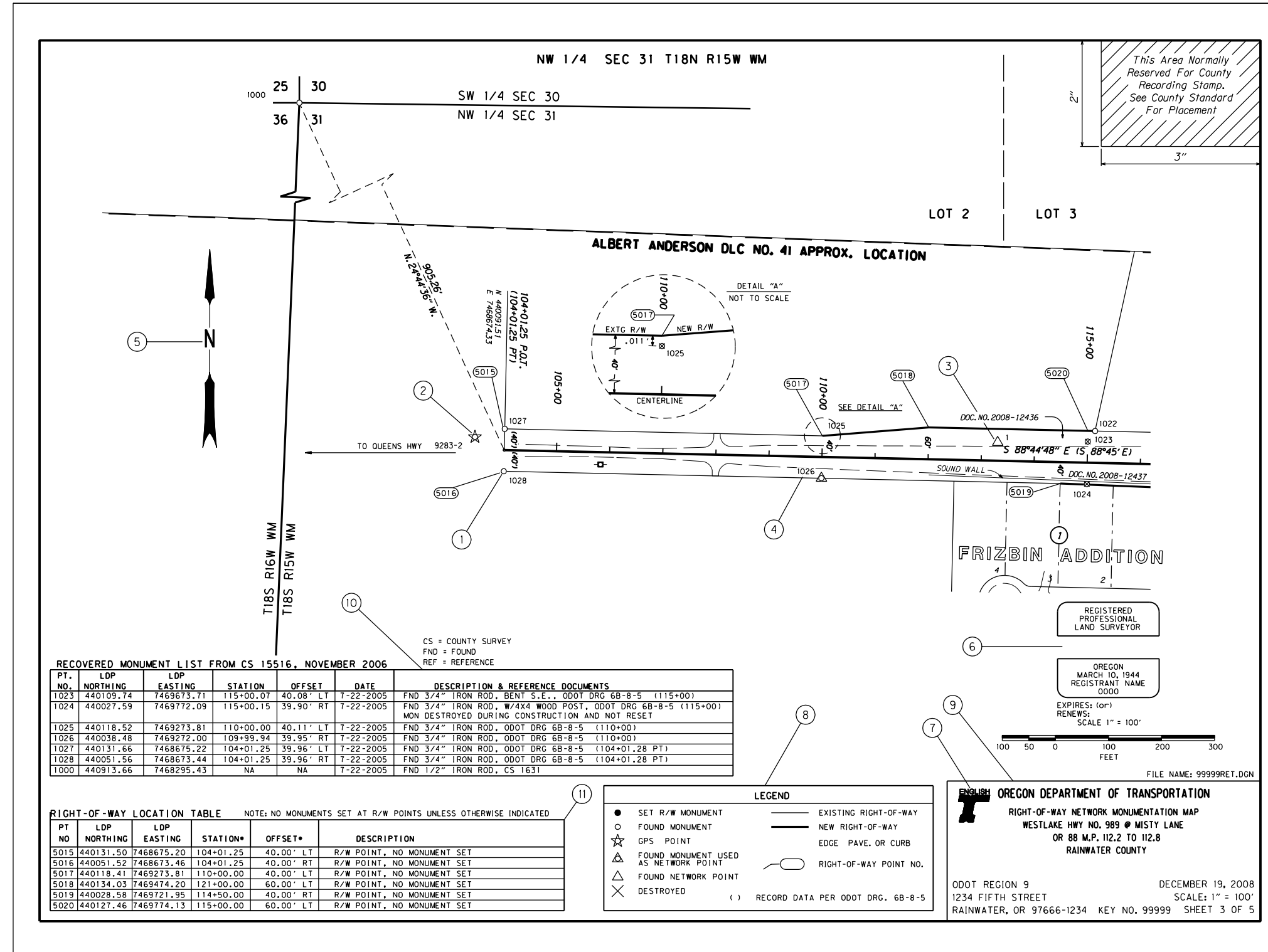


Sheet 3 - Common Cell Symbols Used

This sheet shows common cell symbols used in recovery surveys. Title block, Legends, tables, etc. are shown in approximate positions and may be adjusted according to the needs of the sheet. All cells shown on this page are found in the Cadastral cell library and can be accessed from the Cadastral drafting menu unless otherwise noted. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

- Found Monument Cell. For monuments recovered during this survey.
Cell Name: FDMON
Level Name: E_SURV_MON_FdMon
Color: 4
Weight: 1
- Found GPS Station Cell.
Cell Name: FDGPS
Level Name: E_SURV_MON_FdGPS
Color: 0
Weight: 1
- Set Traverse/Network Point Cell.
Cell Name: SETNTW
Level Name: E_SURV_NTW_SetNTWPt
Color: 3
Opaque Fill Color: 3
- Found Monument Used As A Traverse/Network Point Cell.
Cell Name: TRISTA
Level Name: E_SURV_NTW_FdTriSta
Color: 0
Weight: 1
- North Arrow Cell.
Cell Name: ARROW
Level Name: P_ODOT_PLAN_General
Color: 6
Opaque Fill Color: 6
- Generic PLS Stamp Cell.
Cell Name: PLS
Level Name: P_ODOT_PLAN_ProfStamp
P_ODOT_PLAN_ProfStampTx
Color: 3
- ODOT Flying Tee Logo For English Surveys.
Cell Name: ENGLISH TEE
Level Name: E_SURV_MAPS_General
Color: 4
Opaque Fill Color: 4
- Symbol Legend Cell. Edit the cell to include only symbols appropriate for the particular sheet.
Cell Name: LEGEND_SFM
Level Name: E_SURV_MAPS_General
- Generic Survey Filing Map Title Block Cell.
Cell Name: TBLOCK_SFM
Level Name: E_SURV_MAPS_General
- Recovered Monument Table Cell.
Cell Name: MONTBL
Level Name: E_SURV_MAPS_General



Sheet 4 - Sheet Text Standards

All text when plotted at 1"=100' scale, shall have a minimum height and width of 0.10 inch (Tx=10). Text fonts used will be ODOT vertical font 2, ODOT vertical Mono font 4, ODOT slant font 24 and ODOT Block font 42. The ODOT drafting menus will automatically load the correct text symbology for any particular item. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

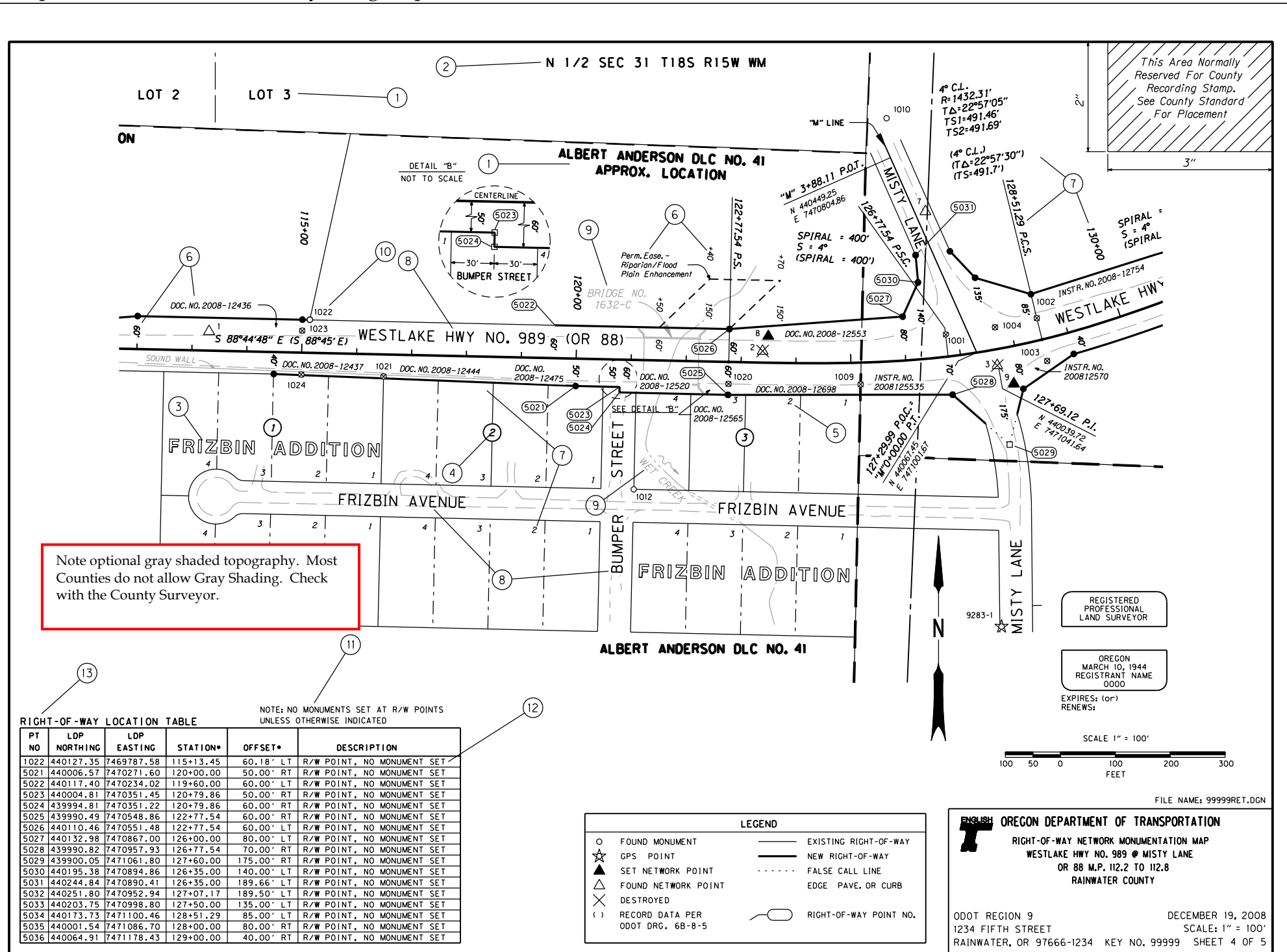
General breakdown of text fonts:

- Center line alignment text - ODOT Slant font 24 (different fonts may be used if showing more than one alignment)
- Bearing and distance ties - ODOT Slant font 24
- Property ownership names - ODOT Slant font 24
- Topographical annotation - ODOT Slant font 24
- Narrative text - ODOT Slant font 24
- Subdivision lot and block numbers - ODOT Slant font 24
- Subdivision names - ODOT Block font 42
- Existing right of way - ODOT Vertical font 2
- Government boundary text - ODOT Vertical font 2
- Tables and columnar text - ODOT Vertical Mono font 4
- All other text - ODOT Vertical font 2

Some fonts found in cells such as the title block and PLS stamp do not totally conform to the above standards.

Text sizes shown below are based on a 1"=100' plot, CAD active scale AS=2

1. Government Line Labels (Township, Section, Quarter section, Government Lot, and DLC: Ft=2, Tx=16)
2. Township/Range/Section Sheet Header (same as Government line labels).
3. Subdivision Name: Ft=42, Tx=24 or 36 depending on appearance.
4. Subdivision Block Numbers: Ft=24, Tx=12
5. Subdivision Lot Numbers: Ft=24, Tx=10
6. Right Of Way Data (including station and offsets, easement text, recorded deed reference numbers) : Ft=24, Tx=10
7. Center Line Alignment Data (stationing, tangent bearings, control points, curve data including spirals): Ft=24, Tx=12
8. Street And Road Names: Ft=2, Tx=18.8
*This text is found on the Existing drafting menu.
9. Topographical Feature Labels: Ft=24 (text size varies)
*Topographical features are found on the Existing drafting menu.
10. Point Numbers (Network points, R/W monuments, GPS stations, etc.): Ft=2, Tx=10
11. Notes: Ft=2
12. Text In Tables: Ft=4
13. Various Table And Column Headings: Ft=2 or 4

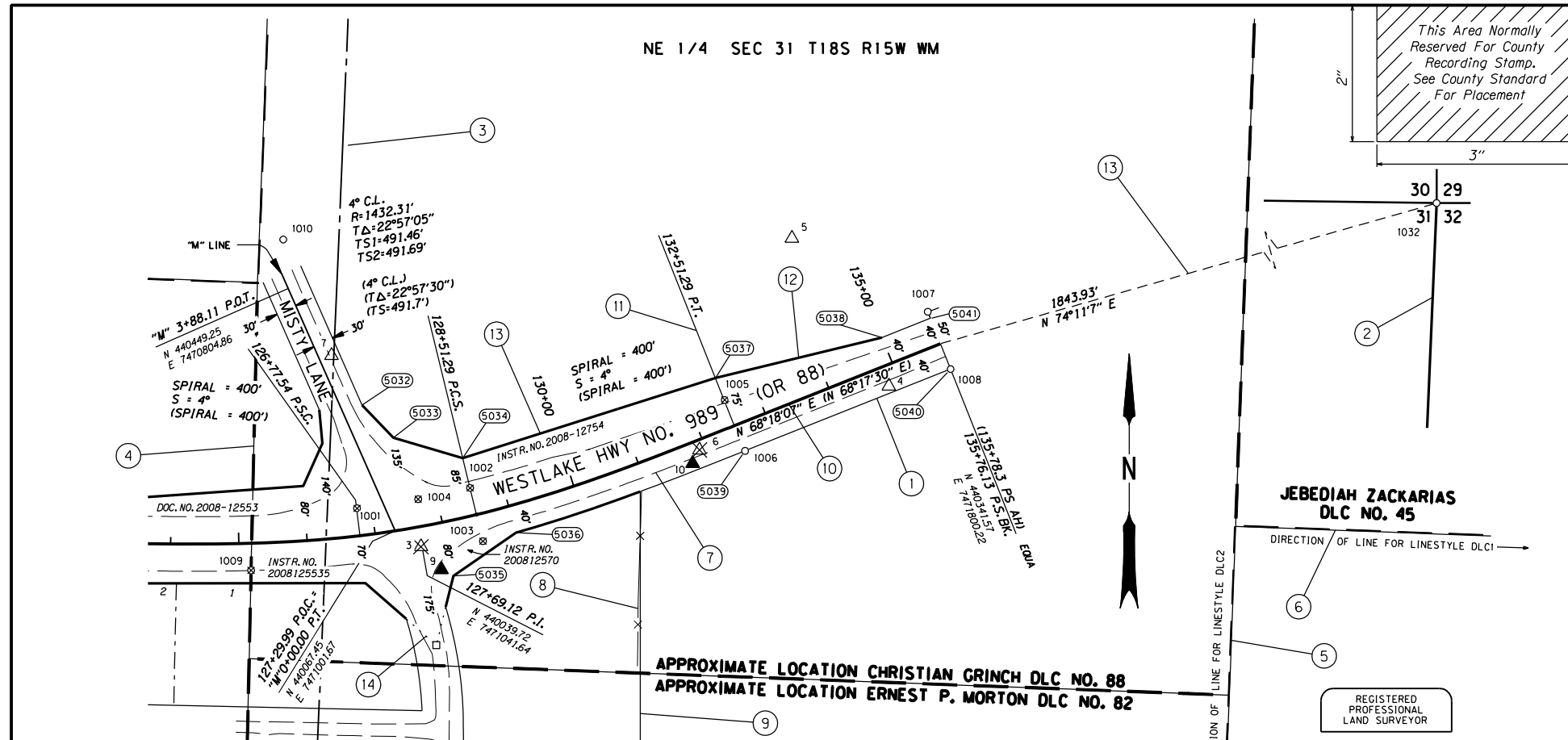


Sheet 5 - Common Line Standards

This sheet shows the various line styles used on ODOT drawings. The examples below may not represent the latest borders and styles. Use the current Survey Task Menu from the ODOT workspace for all drafting tasks and for current borders use the Seed file located in the SeedRW2d.dgn file found in the ODOT workspace and located in the Survey Filing Map Borders model.

Notes and Explanations

- Existing Street/Highway Right Of Way Line.
Level Name: E_SURV_BNDRY_ROW E_SURV_BNDRY_SROW*
Color: 4 Line Style: 0 Weight: 4**
* Use this level for stand alone CAD files or when not using pen tables to increase the weight upon plotting.
**As plotted attributes.Section Line.
- Level Name: E_SURV_BNDRY_GovSectionLine
Color: 6 Line Style: 0 Weight: 3
- Quarter Section Line.
Level Name: E_SURV_BNDRY_GovQuartSectLine
Color: 6 Line Style: quarter_V8 Weight: 2
- DLC Line With Claim On Both Sides.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc3_V8 Weight: 1
- DLC Line With Claim On Right Side Only.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc2_V8 Weight: 1
- DLC Line With Claim On Left Side Only.
Level Name: E_SURV_BNDRY_GovDLCLine
Color: 6 Line Style: dlc1_V8 Weight: 1
- Edge Of Asphalt Pavement. *Found on Existing drafting menu
Level Name: E_RDWY_ROAD_EdgeAsph
Color: 2 Line Style: 3 Weight: 1
- Fence Line. *Found on Existing drafting menu
Level Name: E_RDWY_ROAD_Fence
Color: 2 Line Style: fence_CE_V8 Weight: 1
- Property Line.
Level Name: E_SURV_BNDRY_Property
Color: 4 Line Style: 0 Weight: 1
- Resolved Center Line.
Level Name: E_SURV_ALIGN_Main
Color: 3 Line Style: 0* Weight: 5
* Other line styles may be used for multiple alignments.
- Control Point Flag *
Level Name: E_SURV_ALIGN_MainTx
Color: 0 Line Style: 0 Weight: 1
*Flag is preset in InRoads preferences
- New Right Of Way Line (Fee Take)
Level Name: P_RW_FEE_Normal
Color: 0 Line Style: 0 Weight: 4*
*As plotted attributes
- Tie To PLSS Corner
Color: 0 Line Style: 2 Weight: 1
- False Call Line *
Level Name: **
Color: ** Line Style: 1 Weight: 1
* False calls are used when the new right of way line crosses an unresolved right of way or property line.
**The level name and color of the false call will match the level and color of the new right of way line.



RECOVERED MONUMENT LIST FROM CS 15516, NOVEMBER, 2005 + = DESTROYED BY CONSTRUCTION

PT. NO.	LDP NORTHING	LDP EASTING	STATION	OFFSET	DATE	DESCRIPTION & REFERENCE DOCUMENTS
1001	440100.39	7470945.66	126+78.25	40.26' LT	6-4-2007	FND 1/2" IRON ROD, ODOT DRG 6B-8-5 (126+78.3 PSC) +
1002	440130.22	7471111.19	128+51.41	40.19' LT	6-4-2007	FND 1/2" IRON ROD, ODOT DRG 6B-8-5 (128+52.25 PCS) +
1003	440052.50	7471130.28	128+51.55	39.84' RT	6-4-2007	FND 1/2" IRON ROD, ODOT DRG 6B-8-5 (128+52.25 PCS) +
1004	440113.65	7471035.24	127+71.43	39.91' LT	6-4-2007	FND 1/2" IRON ROD, CS 1631 +
1005	440259.09	7471484.27	132+52.07	40.18' LT	6-6-2007	FND 3/4" IRON ROD, ODOT DRG 6B-8-5 (132+52.25 PT) +
1006	440184.45	7471514.04	132+52.14	40.18' RT	6-6-2007	FND 1/2" IRON ROD, ODOT DRG 6B-8-5 (132+52.25 PT) SEE MON 5039
1007	440388.28	7471781.64	135+76.13	50.27' LT	6-6-2007	FND 1/2" IRON ROD, ODOT DRG 6B-8-5 (135+78.3 PS)
1008	440304.21	7471815.09	135+76.13	40.21' RT	6-6-2007	FND 1/2" IRON ROD, BENT, WITH 4X4" WOOD POST, ODOT DRG 6B-8-5 SEE MON 5040
1032	440844.34	7473574.97	NA	NA	6-6-2007	FND 2" BRASS DISK STAMPED "29-30-31-32" CS 12345

RIGHT-OF-WAY LOCATION TABLE

PT. NO.	LDP NORTHING	LDP EASTING	STATION	OFFSET	DESCRIPTION
5032	440251.80	7470952.94	127+07.17	189.50' LT	R/W POINT, NO MONUMENT SET
5033	440203.75	7470998.80	127+50.00	135.00' LT	R/W POINT, NO MONUMENT SET
5034	440173.73	7471100.46	128+51.29	85.00' LT	R/W POINT, NO MONUMENT SET
5035	440001.54	7471086.70	128+00.00	80.00' RT	R/W POINT, NO MONUMENT SET
5036	440064.91	7471178.43	129+00.00	40.00' RT	R/W POINT, NO MONUMENT SET
5037	440291.16	7471470.67	132+51.29	75.00' RT	R/W POINT, NO MONUMENT SET
5038	440350.59	7471714.70	135+00.00	40.00' LT	R/W POINT, NO MONUMENT SET
5039	440184.31	7471513.19	132+51.29	40.00' RT	R/W POINT, NO MONUMENT SET
5040	440304.40	7471815.01	135+76.13	40.00' RT	R/W POINT, NO MONUMENT SET
5041	440378.74	7471785.43	135+76.13	40.00' LT	R/W POINT, NO MONUMENT SET

LEGEND	
○	FOUND MONUMENT
△	SET NETWORK POINT
△	FOUND NETWORK POINT
×	DESTROYED
()	RECORD DATA PER ODOT DRG. 6B-8-5
—	EXISTING RIGHT-OF-WAY
—	NEW RIGHT-OF-WAY
---	FALSE CALL LINE
---	EDGE PAVE. OR CURB
---	FENCE
○	RIGHT-OF-WAY POINT NO.

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON MARCH 10, 1944 REGISTRANT NAME 0000

EXPIRES: (or) RENEWS:

SCALE 1" = 100'

FILE NAME: 99999RET.DGN

ODOT REGION 9
1234 FIFTH STREET
RAINWATER, OR 97666-1234

DECEMBER 19, 2008
SCALE: 1" = 100'
KEY NO. 99999 SHEET 5 OF 5

RIGHT-OF-WAY NETWORK MONUMENTATION MAP
WESTLAKE HWY NO. 989 @ MISTA LANE
OR 88 M.P. 112.2 TO 112.8
RAINWATER COUNTY