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MANUAL TRANSMITTAL SHEET

Subject

H-9115 – 2 – Primitive Roads Inventory and Condition Assessment
Guidance and Instructions Handbook

1. Explanation of Materials Transmitted: This is a new Manual with associated Handbooks on primitive roads. Attached is the Handbook 2 section only, per Directives instructions. The Manual and Handbook 2 are under separate clearance sheets for each.

2. Reports Required: None.

3. Material Superseded: None.

4. Filing Instructions:

REMOVE

None.

INSERT

All 9115 - 2- Primitive Roads inventory and Condition
Assessment Guidance and Instruction Handbook
(Total: 18 Sheets)

/s/ Janine Velasco
Assistant Director, Business and Fiscal Resources

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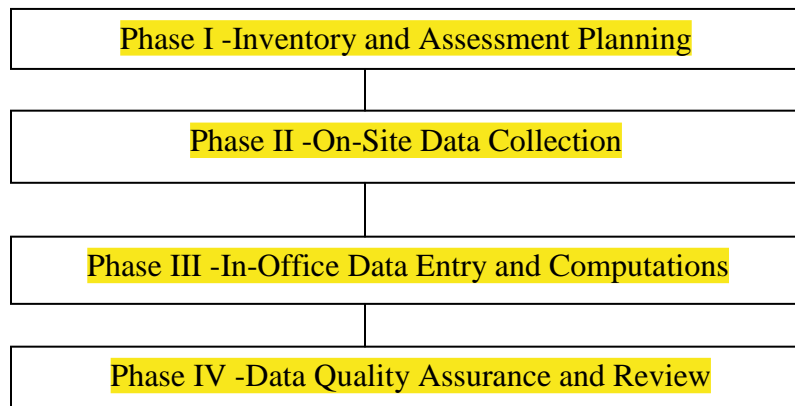
H-9115-2 PRIMITIVE ROADS INVENTORY AND CONDITION ASSESSMENT GUIDANCE & INSTRUCTIONS HANDBOOK

.1 Introduction and Background.

This handbook describes a system for inventorying and assessing Bureau of Land Management Primitive Roads – Although Comprehensive Condition Assessment (CCA) on primitive roads is not mandatory, condition assessment on primitive roads may be performed as part of BLM's normal work activities. This publication provides guidance and instruction for assessing primitive roads.

The approach for asset management of primitive roads is similar to that utilized for the Bureau's roads. It utilizes the same methodology for assessment, development of current replacement value, and application of annual maintenance cost factors.

The typical condition assessment project contains several distinct phases. For the purposes of this document we will discuss those phases that pertain to Assessment as illustrated by the line diagram below. Small scale assessments may inherently combine steps for efficiency of the effort and will dictate the appropriate assignment of roles and responsibilities however, the process itself (inventory and condition assessment standards) should not be modified regardless of the length, surface type, or geographic location.



.11 **Phase I - Inventory and Assessment Planning.** The planning phase consists of data gathering and schedule coordination. The following tasks will be performed prior to field data collection:

- **Collect Primitive Road maps and other pertinent data.**
- **Prepare a listing of Primitive Road information (name, location number and surface type).**
- **Determine Primitive Road segmentation (begin/end points, land ownership and surface type changes).**
- Determine if special equipment is required.
- Develop a safety plan.

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.12 Phase II - On-Site Data Collection. On-site data collection can be accomplished by BLM or contract field assessor. It is desirable to have a BLM Field Office staff member accompany, or serve as part of, the field assessment team whenever possible. Tasks to be completed in the field include:

- Inventory of the entire length of the Primitive Road segments including the name, location number, length, width, surface type, terrain and route number (GPS information, if possible)
- Identify potential health and safety items on the entire length of the Primitive Road segments (GPS information, if possible)
- Identification and measurement of Primitive Road deficiencies

.13 Phase III - In-Office Data Entry and Computations. Field data collection focuses on two requirements: (1) collecting or validating inventory information in accordance with BLM Minimum National Data Standards for Primitive Roads, and (2) identifying and quantifying deferred maintenance (location and quantity or volume). This information may be captured manually or via an electronic collection device. Previously developed deferred maintenance unit costs and current replacement value unit costs will be applied to deficiencies inspected and Primitive Road segments inventoried.

.14 Phase IV - Data Quality Assurance Review. Quality control checks will be conducted at several points in the project process flow. In the field, each assessor will be responsible for reviewing data as it is collected. In the office, data will be reviewed and input into the asset management system.

.2 Phase I - Inventory and Assessment Planning.

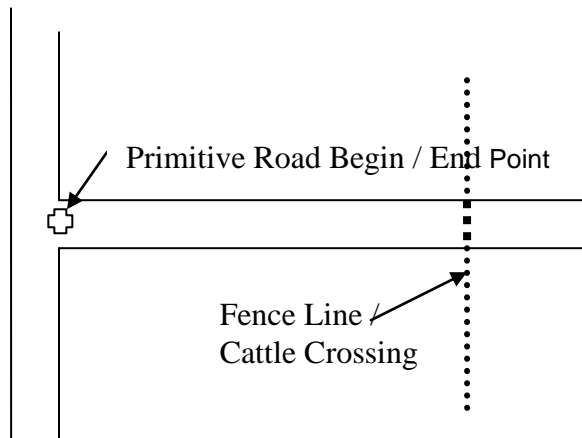
A Primitive Road segment is considered an asset in the BLM system. BLM Primitive Road segments are named by the States and naming conventions vary across the system. Primitive Road segments of different surfacing materials may occur within one Primitive Road.

All available information concerning the Primitive Roads to be assessed, such as Primitive Road begin/end points, land ownership information, previous assessments, and spatial data will be gathered. Base information including Primitive Road segment name, location number, maintenance designation, surface type and Primitive Road limits will be downloaded from the asset management system and provided to the Assessment personnel.

.21 Primitive Road Route Designation, Location and Name. If the begin / end point of a Primitive Road is not known when the field assessor begins their work, the point will default to the example shown on the next page.

Default begin / end point: At an intersection with a non-BLM route, the beginning point of the BLM Primitive Road will be at the edge of the route along the centerline of the BLM Primitive Road.

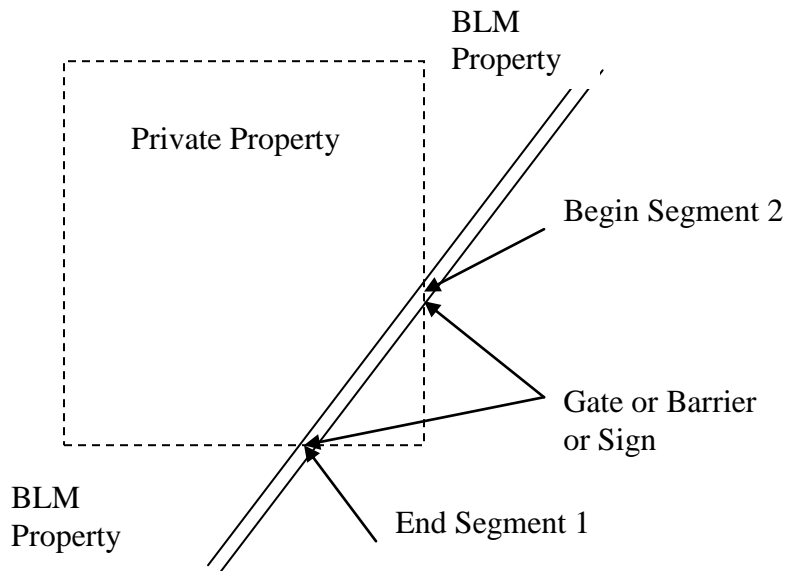
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Primitive Road route designations (route number and name) will follow the same parameters as for roads found in H-9113-2 Roads National Inventory and Conditions Assessment Guidance & Instructions Handbook.

.22 Primitive Road Segmentation. Normally primitive roads are not segmented, with exception of ownership changes but can be based on width and surface type

Primitive Road segments will begin/end when private property, state land, or any non-BLM land is encountered as shown in the following diagram unless the BLM has easement or jurisdiction of the Primitive Road. If the Assessor is uncertain of a jurisdiction change, they should note the location of the questionable segment in the data file.



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.3 Phase II: On-Site Data Collection.

.31 Field Measurements for Inventory. The assessor is required to perform the following basic tasks during the course of the on-site inventory data collection:

- 1) Collect or validate surface type, width, and overall length for each Primitive Road segment
- 2) Validate whether the segment is a road or primitive road
- 3) Identify deficiencies that effect the functionality of the primitive road
- 4) Identify deficiencies in the primitive road causing degradation to adjacent resources
- 5) Identify potential health and safety items
- 6) Take digital photos of potential health and safety items

Potential health and safety deferred maintenance items are those that may pose a serious threat to the public or BLM employee health and safety. Potential health and safety items include such things as Primitive Road washouts, damaged rails, falling rocks and collapsed drainage. Potential health and safety items are not always points, they may be noted as lengths or areas. All potential health and safety items will be inventoried so local BLM officials can locate them for priority maintenance.

.32 **Field Measurements for Deferred Maintenance Computation and Assessment Condition Index.** Each Primitive Road segment will be assessed for deferred maintenance items. Primitive roads are intended for use by high-clearance or 4-wheeled drive vehicles. Deferred maintenance is defined as maintenance that was not performed when it should have been or was scheduled to be and which was put off or delayed for a future period.

Annual maintenance is defined as the maintenance tasks accomplished on a regular basis to keep assets in acceptable condition. **Low to medium severity ruts and potholes and brushing of vegetation are not to be recorded as deferred maintenance.**

The type of assessment to be used in this project is the Field Visual Assessment method. The primitive road features will be inspected and assessed along the entire length, as outlined in the Field Visual Assessment Form. See Appendix A - Field Visual Assessment Form.

Deficiencies will be noted on assessment forms as the assessor proceeds along the Primitive Road segment. At the end of each segment, deficiencies noted will be tallied and saved.

.33 Inspection Protocols. The method of estimating and recording each of the distress types to be inspected is discussed on the following pages. **Record only deficiencies that restrict prudent passage over the primitive road by a high-clearance or 4-wheel drive vehicle.** Linear quantities for deficiencies will be visually estimated during the inspection. They do not need to be physically measured.

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Drainage.

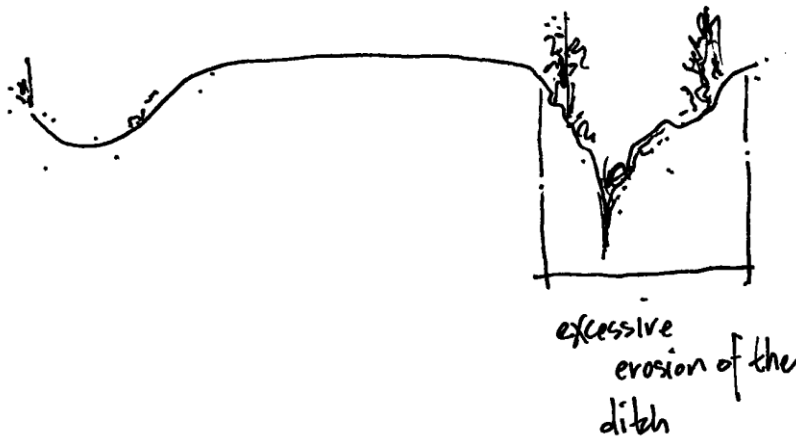
Record drainage deficiencies for any condition that creates degradation to adjacent resources (erosion) or restricts passage by high-clearance or 4-wheel drive vehicles.

Any constructed asset associated with a primitive road such as ditch, cross drain, culvert, water bar, etc that is not functioning properly for the intended purpose is a deficiency that should be recorded.

Examples include slope failure, washouts, road braiding, severe ruts, and longitudinal drainage.



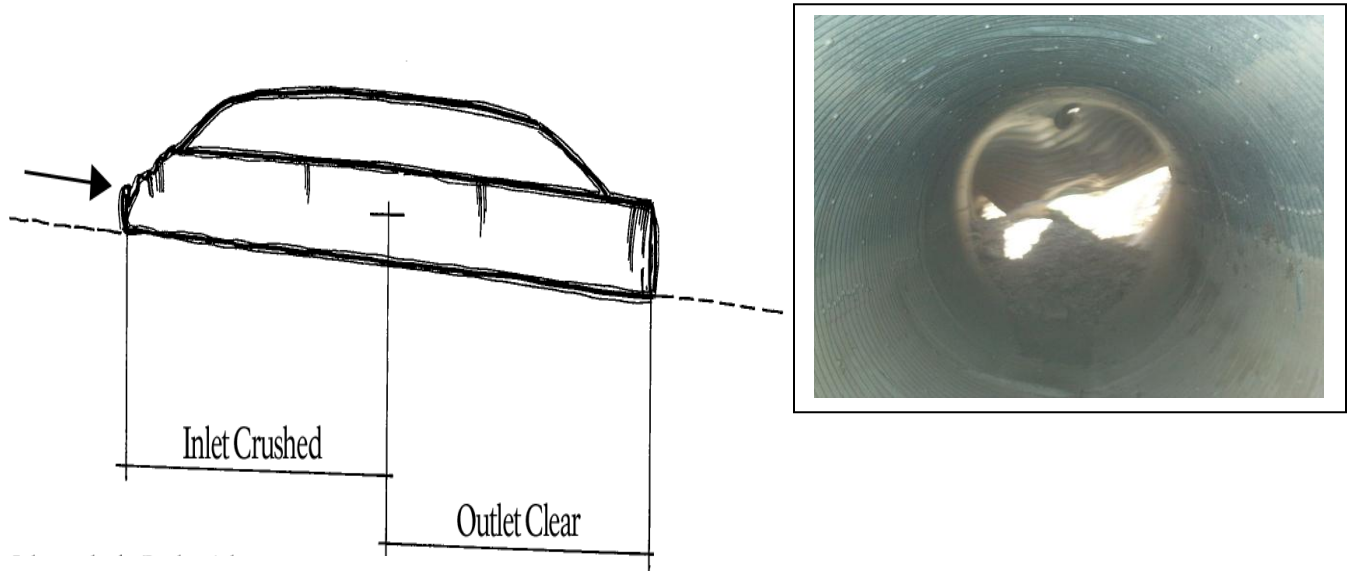
Longitudinal drainage



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Culvert Condition. Examples include crushed or buried inlets.

Crushed Culverts.

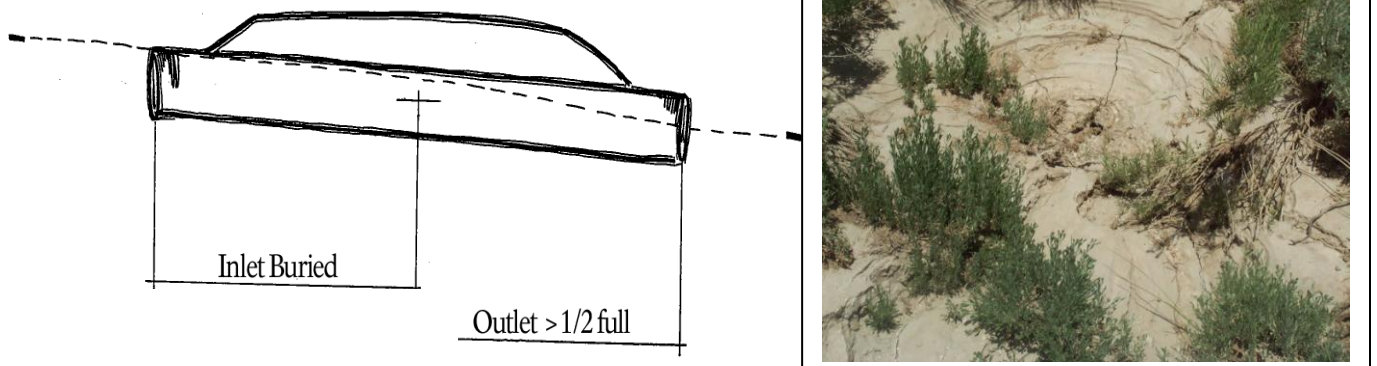


Length = 6' if pipe is larger than 24" diameter; replace entire length of pipe if diameter is 24" or less

Depth = <6', 6-14', >14'

Diameter = measured diameter of existing pipe

Buried Culvert.



Length = measured length of existing pipe

Depth = <6', 6-14', >14'

Diameter = measured diameter of existing pipe

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Ruts.

A rut is a permanent surface deformation that is typically in a path parallel to the Primitive Road centerline. Ruts are estimated in linear feet along the travel way. High severity ruts force the user to vary outside the intended route or prevent travel by a high clearance or 4-wheel drive vehicle.

The following photograph shows a native surface Primitive Road with severe rutting.



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Vegetation Removal.

Vegetation is a deficiency when it impacts proper drainage or prevents passage by a high-clearance or 4-wheel drive vehicle. Trees blocking the drainage ditch of a Primitive Road or encroaching into the Primitive Road are estimated per each for trunk size less than approximately 6" in diameter and greater than approximately 6" in diameter.

Other Appurtenances.

Cattleguards and adjacent gates will be inspected for deferred maintenance. Inspections will note missing grates, missing wings, or the need to reset the cattleguard to grade. Damaged or missing signs are counted as Primitive Road deficiencies.

The following table on the following page provides a quick reference to deficiencies estimated in the field and deferred maintenance corrective actions.

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| Primitive Road Protocol Conditions | Deferred Maintenance | Standard Measurements | Corrective Action |
|---|------------------------------------|-------------------------------|---|
| Drainage | Low areas | Length, Width, Depth | Fill - embankment |
| | High areas | Length, Width, Depth | Grading |
| Ditch Condition | Ditch silted in | Length, Width, Depth | Ditch cleaning - remove material. |
| | Excessively eroded ditch | Length, Width, Depth | Fill-embankment - add material to erosion area. |
| Culvert Condition | Buried Pipe | Length, Diameter, Depth | Replace pipe |
| | Full of Debris | Length, Diameter, Depth | Replace pipe |
| | Crushed | Length, Diameter, Depth | Replace pipe |
| Potholes | Potholes - Natural | Number and average depth(>6") | Grading |
| | Potholes - Aggregate | Number and average depth(>6") | Aggregate replacement |
| Ruts | Rutting - Natural | Length (>6" deep) | Grading |
| | Rutting - Aggregate | Length (>6" deep) | Aggregate replacement |
| Vegetation Removal | Vegetation hand clearing | Length and Width | Brush removal with hand saw |
| | Vegetation at culvert inlet/outlet | Each | Brush removal with hand saw |
| | Tree Removal >6" | Quantity - Each | Remove selective trees |
| Other Appurtenances - Cattleguard | Replace wing(s) | Quantity - Each | Replace Cattleguard wings |
| | Replace entire cattleguard (8x12) | Quantity - Each | Replace entire Cattleguard (wings, base, grate, etc.) |
| | Repair wing(s) | Quantity - Each | Repair wings (reattach, etc) |
| | Cleaning | Quantity - Each | Clean cattleguard |
| | Missing/Damaged Gates | Quantity - Each | Replace gates |
| Other Appurtenances - Signage | Damaged or Missing Sign | Quantity - Each | Replace Sign |

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Field Data Entry

A paper form (Appendix A - Field Visual Assessment Form) is used to capture deficiencies found on the Primitive Road segment. At the end of each Primitive Road segment, tally and store noted deficiencies.

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.4 Phase III: In-Office Data Entry and Computations.

Data from each assessment needs to be documented in the asset management system. Appendix B - Minimum National Standards provides the minimum national data standards for a primitive road segment. Cost estimates for the deficiencies will be calculated using established cost estimating methodology as defined in the asset management system. Where applicable, create deferred maintenance work orders within the asset management system.

.5 Phase IV: Data Quality Assurance and Review.

Review inventory, assessment and computation results prior to input into the asset management system. In general, tasks to be completed in this phase include:

- Review of assessment forms for completeness
- Review of deferred maintenance calculations for reasonableness
- Review of current replacement value and facility condition index
- Review of identified potential health and safety items

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APPENDIX A - FIELD VISUAL ASSESSMENT FORM

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| FIELD VISUAL ASSESSMENT FORM | | | | |
|--|------------------------|-----------------------|--|--|
| PRIMITIVE ROADS CONDITION ASSESSMENT FORM | | | | |
| PRIMITIVE ROAD NAME/#: | | BEGIN MP | END MP | |
| STATE: | | BEGIN - END | END - BEGIN | |
| DATE: | | SURFACE TYPE: | | |
| ASSESSOR: | | SURFACE WIDTH: | | |
| BLM PRIMITIVE ROADS CONDITION ASSESSMENT | | | | |
| Deficiency Types | Quantification | | Condition | |
| | | | Description of Corrective Action | |
| General | Unit of Measure | Capture QTY | Include Type and Size of Work and Material Needed | |
| Earthwork | CY | | | |
| Slope Failure | | | | |
| | | | | |
| Surface | UOM | QTY | Include Type and Size of Work and Material Needed | |
| Severe Potholes | SF | | | |
| Severe Rutting | LF | | | |
| | | | | |
| Drainage | UOM | QTY | Include Type and Size of Work and Material Needed | |
| Culverts | EA | | | |
| Water Bars | EA | | | |
| Drainage Ditches | LF | | | |
| Grade Dips | EA | | | |
| Vegetation Removal | UOM | QTY | Include Type and Extent of Vegetation to be Removed | |
| Clearing | LF | | | |
| At Culvert Inlet/Outlet | SF | | | |
| Tree Removal (<6" diam.) | EA | | | |

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| | | | | | | |
|---|---------------|---------------------|-------------|------------------------------------|-----------------|--|
| Tree Removal (>6" diam.) | EA | | | | | |
| Other | | | | | | |
| Other Appurtenances (signs, gates, cattleguards, low water crossings.) | Length | Width/Height | Type | Condition/Corrective Action | Quantity | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Comments: | | | | | | |
| | | | | | | |
| | | | | | | |

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APPENDIX B - MINIMUM NATIONAL DATA STANDARDS

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**MINIMUM NATIONAL DATA STANDARDS FOR A PRIMITIVE ROAD
SEGMENT**

| ASSET ATTR | UOM | DOMAIN ID | BUSINESS REQUIRED |
|-------------------|------------|------------------|------------------------------|
| BEGML | | | Required |
| ROUTENUM | | | Required |
| OCLAND | | Y/N | Required |
| SURFACE | | SURFACE | Required |
| AVGWIDTH | | | Required |
| ENDML | | | Required |
| JURIS | | JURISDICTION | Required |
| MAINTRES | | MAINTRES | Required |
| SPECDESG | | GTRN-SPECDESG | Optional |
| SPURNOG | | | Optional |
| REACT | | GTRN-TMOACTION | Optional |
| SPEED | | | Optional |
| TMOBENE | | | Optional |
| YRWTHDR | | | Optional |
| ALLGRTN | | | Optional |
| TOMACT | | GNTR- TMOACTION | Optional |
| ACCESS | | GTRN-ACCESS | Optional |
| SUBGWDTH | | | Optional |
| FUNCLASS | | FUCTCLASS | Optional |
| CLOSEYR | | | Optional |
| CLSSTACD | | | Optional |
| RECYR | | | Optional |
| ALPART | | | Optional |
| TMOAPPOV | | | Optional |
| SECTION | | | Optional |
| RANGE | | | Optional |
| MERIDIAN | | MERIDIAN | Optional |
| MAINTLEV | | MAINTLEVEL | Optional |
| TOWNSHIP | | | Optional |
| MAINTINT | | MAINTINTENISTY | Optional |
| RESTRICT | | RESTRICT | Optional |
| RDRESTR | | RDRESTR | Optional |
| IMPYR | | | Optional |
| TMOPLNYR | | | Optional |
| TMOACTRE | | GTRN-TMOACTION | Optional |
| CLSRSNCD | | CLSRSNCD | Optional |
| CLSSTAT | | CLSSTAT | Optional |
| REASON | | GTRN-TMOACTION | Optional |

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| | | | |
|-------|--|--|----------|
| AUC | | | Optional |
| OCSEG | | | Optional |