

Missouri River Freight Corridor
Assessment and Development Plan

Inventory Report, Maps

(Section 1 and Maps of Section 2, from Technical Memo 2)



Prepared By



Hanson Professional Services, Inc.



Supporting Document Prepared for Missouri Department of Transportation
2011 October Project TRyy1018 Report cmr 12 - 006

1.0 Introduction

The purpose of the Missouri River Freight Corridor Development effort is to redevelop the river as a freight corridor with logical market nodes and reliable service that supports a sustainable market and logistics system. Four focus areas have been identified to support increased river use and corridor development:

1. Redevelop and expand traditional freight markets,
2. Identify port infrastructure needs, operations support, and equipment required to initiate, support and expand freight services on the river,
3. Evaluate potential new markets and strategies to promote market expansion, and
4. Identify conceptual approaches to river management that optimize freight movement on the river.

The specific objectives and expected results of this study include:

1. Identify and describe feasible, practical, and market driven strategies to redevelop traditional markets on the river. Prioritize these approaches based on their feasibility to stimulate market development on the river, industry acceptance, as well as efficiency and costs. Describe individual strategies as “Concepts of Operations” to facilitate program implementation.
2. Assess the potential for new markets on the river that include project cargo, container shipping, or the shipping of non-traditional commodities or goods on the river. Identify promising markets, market nodes, and requirements for specialized equipment.
3. Identify the infrastructure, as well as equipment, operations support, and conceptual river management approaches needed to facilitate the most likely market development scenarios. Describe the potential policy process and resulting impacts of those potential changes for freight shipping, market development, and sustainability.
4. Based on objectives 1 through 3, provide a detailed Concept of Operations Approach that describes each of the most promising combinations of market development, new market development, infrastructure, and river management, that will result in increased freight shipping on the Missouri River.

Section 1.0

Introduction



Based on the above, the work plan outlines (6) major tasks in bringing about these results:

- Task 1: Review of existing literature and practices and Initial Stakeholder Involvement
- Task 2: Inventory on the Missouri River
- Task 3: Market Potential and Overall River Development Approach
- Task 4: Market Nodes, River Management, Infrastructure Needs
- Task 5: Technical Memo, Research Findings Forum, Refine Strategies
- Task 6: Detailed Concepts of Operations and Final Report

This Technical Memo is the first deliverable and covers Task 2 of the overall project.

1.1 Objective and Methodology

The objective of Task 2 is to provide an inventory of public and private port facilities, infrastructure, and intermodal connectors on the Missouri River. Specific elements of this Task included:

- Compiling a list of available sources of information including: GIS data, U.S. Army Corps data and navigational charts, Inland River Guide, previous studies, etc.
- Collection and assembly of available GIS data for public and private ports, rail and highway transportation, etc. on the Missouri River. The inventory predominantly focused on those infrastructure elements within the state of Missouri
- A review collected data, mapping, and other information to determine specific field reconnaissance and interview needs
- Field reconnaissance and interviews
- Preliminary evaluation of existing infrastructure as it relates to its apparent suitability and sufficiency to facilitate and support the successful implementation of freight growth strategies
- In cases where the existing infrastructure is either insufficient or unsuited to support the level or type of freight flows anticipated, preliminary recommendations for needed improvements were provided. (Specific recommendations for necessary infrastructure will be included in Task 4.)
- Compilation of the information into the Inventory Report document (Section 2.0 of this Technical Memo) including:
 - GIS mapping,
 - Transportation infrastructure including rail lines, highways and truck routes proximate to the Missouri River,
 - Public and private port facilities and infrastructure including load, unload, and transload capabilities and known commodities served presently or historically,
 - Intermodal connectors proximate to the Missouri River,

- Basic description and evaluation of apparent condition of infrastructure elements, with preliminary planning-level opinions of cost to address apparent infrastructure needs identified during this task
- Description of operational support elements (i.e. fleeting, fuel service, barge repair facilities, etc.),
- Photos as appropriate to document specific infrastructure elements or their apparent condition (see Site Visit Reports in Section 3.0)
- Public or private infrastructure needs based on recommendations or comments from stakeholders and interviewees, and
- Public or private infrastructure needs identified by the Hanson team during site visits, review of available mapping, or review of previous study area reports.

Additionally, Section 4.0 of this Technical Memo describes a timeline of significant history for freight activity on the Missouri River and begins the process of defining a Navigation Service Cycle based on the following sub-task objectives:

- Develop a historic timeline of river freight history including overlay of historic climate cycle, significant events such as opening of the McClellan-Kerr Arkansas River Navigation System, master manual changes, etc., then add tons of freight moved. The purpose is to attempt to develop a tool that can bring insight into what is driving business on the river.
- Utilizing available historic hydrographic information and data since 1896, attempt to identify patterns to describe a Navigation Service Cycle (NSC). The purpose of attempting to identify an NSC for this study is to aid in understanding historic periods where navigation has tended to be feasible and infeasible under defined criteria relative to recent navigation requirements. NSC assumptions projected into the future may assist in forming strategies that can be undertaken to adjust market or operational effort during down segments (navigation less feasible) of an NSC and to maximize opportunity during up segments of an NSC.

Data and history pertaining to an Navigation Service Cycle were gathered and are presented in Section 4.0. Due to the complex and unpredictable nature of the variables, it was ultimately not practical to quantify a specific anticipated time frame for an NSC. However, the process of understanding the challenges to freight development while attempting to develop an NSC aided in the formation of strategies and Concepts of Operations later in the project.

Section 2.0

Inventory Report



2.0 Inventory Report

2.1 Introduction

This Inventory Report includes:

- Compilation of the data sources used and for which elements the sources were used.
- GIS maps and data for public and private ports, rail and highway transportation, on the Missouri River. The inventory is predominantly focused on those infrastructure elements within the state of Missouri, but do include some elements in other states where information was readily available.
- Tables of public and private port facilities and infrastructure including load, unload, and transload capabilities and known commodities served presently or historically
- Preliminary evaluation of existing infrastructure as it relates to its apparent suitability and sufficiency to facilitate and support the successful implementation of freight growth strategies
- In cases where the existing infrastructure is either insufficient or unsuited to support the level or type of freight flows anticipated, there are preliminary recommendations provided for needed improvements. Specific recommendations for necessary infrastructure will be developed in Study Task 4.
- Preliminary planning-level opinions of cost to address apparent infrastructure needs identified during this task.
- Evaluation of existing operational support elements required to service freight growth.

2.1.1 Data sources

The following data sources were utilized to generate the specific items indicated in the maps, figures, and tables included in the inventory:

Bing Maps :

Aerial photo background
(based on a license that Hanson maintains)

Bowen Engineering & Surveying:

Missouri River Mooring Facility Areas
Missouri River Dolphins

Canal Barge Line Facility Index, 2001

River Facilities and capabilities - historic

Google Earth and Google Maps

Secondary Source for River Facilities, Rail and Roadway connections

Inland River Guide, 2009

River Facilities & operational support capabilities

MapQuest (<http://www.mapquest.com>)

Secondary Source for River Facilities, Rail and Roadway connections

Missouri Department of Transportation

Missouri Public Port Authorities: Assessment of Importance and Needs, 2006

Update of Missouri Port Authority Assessment, 2007

Public Ports

Missouri Spatial Data Information Service (www.msdis.missouri.edu):

Above Ground Tanks

Floodplains

Katy Trail

Levee Areas

Mine Locations

Missouri Dept. Conservation Lands

Missouri DNR Lands

Missouri River Facilities

Pipelines

Port and Terminal Locations (also checked with USDOT NTAD 2010 and Google Earth)

Power Plants (also checked with USDOT Google Earth)

Transfer Stations

StreetMap USA (part of the Arcmap package):

Cities

Roadways

Minor Waterways

University of Nebraska-Lincoln

(<http://snr.unl.edu/data/geographygis/NebrGISdata.asp>):

Nebraska Mine Locations

USACE (Omaha and St. Louis Districts):

Missouri River Bulkheads

Missouri River Mile Markers

Missouri River Moored Vessel Areas

Missouri River Dikes

Lock & Dams

Omaha Pedestrian Bridge

USACE Navigation Data Center, Port Series Report #68, 2000

(<http://www.ndc.iwr.usace.army.mil/ports/pdf/ps/ps68.pdf>):

Secondary Source for River Facilities and Freight Capabilities

USDOT NTAD 2010:

County Boundaries

Freight Terminals

Major Waterways

Port and Terminal Locations (As well as Missouri Spatial Data Information Service and Google Earth visible locations)

Rail Lines

State Boundaries

US Geological Survey:

Iowa Mine Locations

Kansas Mine Locations

Site Visits:

Many of the river facilities were visited (and others attempted to be visited) by Hanson personnel. The data and observations collected during those visits were used to update or modify the information obtained from the other sources listed above.

The inventory information presented here includes storage volume or capacity information for some facilities. The reported volume or storage information was gathered from previous USACE documents and has generally not been independently verified in this inventory.

2.1.2 Condition Assessment Categories

A preliminary evaluation of the reported or apparent current condition of the water facilities was made during site visits, or during interviews, or while reviewing collected data. The following six categories were used to describe the condition of the infrastructure for the waterways facilities included in the inventory:

1. Structures or Equipment appear functional or are in use with no major deficiencies reported or observed
2. Structures or Equipment are on site, but appear or are reported to require minor upgrade or maintenance
3. Structures or Equipment are on site, but appear or are reported to require significant upgrade or maintenance
4. Structures or Equipment appear or are reported to be on site, but no assessment of their condition was made
5. Necessary Structures or Equipment are apparently or reportedly missing
6. No information was obtained about Structures or Equipment

The specific condition assessment category derived for each facility is presented in the Main Inventory Table (Section 2.5 of this document). Each assessment value is based on one of the following:

- a. A review of the facilities on site
- b. A review of the facilities via online aerial photography or satellite imagery
- c. Comments received from interviews with personnel on site
- d. Comments received from phone interviews
- e. In the case of a category 6 determination, none of the above elements was readily accessible

2.2 Inventory Summary

The Main Inventory Table in Section 2.6 lists the public and private port facilities for the portion of the Missouri River shown in Section 2.3. The inventory was derived from GIS data, U.S. Army Corps data, navigational charts, Inland River Guide, previous studies, interviews and site visits. A preliminary evaluation of each facility's infrastructure was conducted for a number of the facilities to ascertain its apparent suitability and sufficiency to facilitate and support freight growth strategies.

The main inventory table consists of 79 facilities that exhibit some sort of port infrastructure along the Missouri River. Of these 79 facilities, 29 are active conducting some sort of freight activity; 30 are inactive, and 20 are classified as unknown, whereby the operational status was unable to be determined at the time of the inventory.

Main Inventory Fast Facts

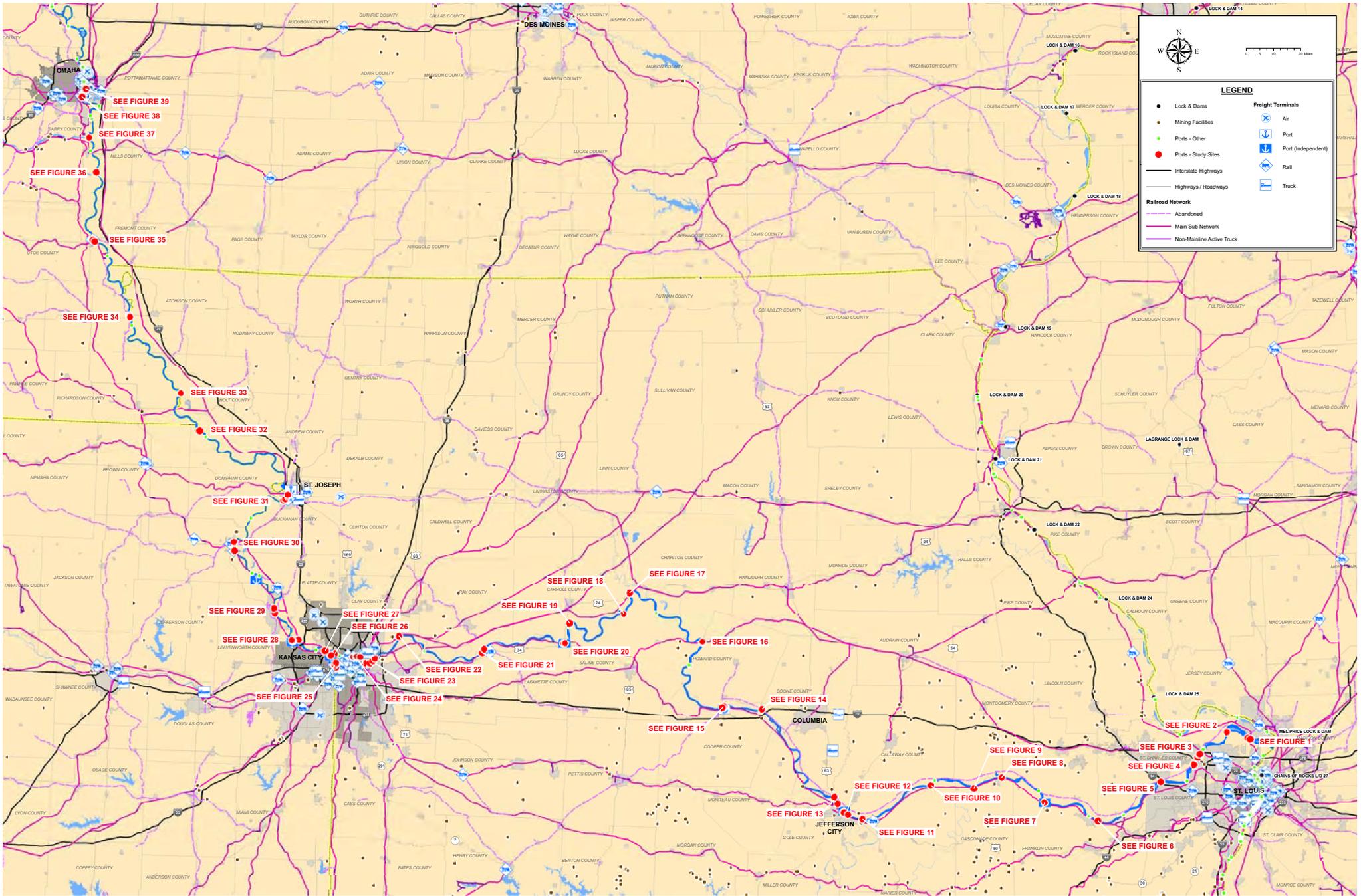
Condition Number	No. of Facilities (Active & Inactive)
1	27
2	7
3	10
4	4
5	4
6	27

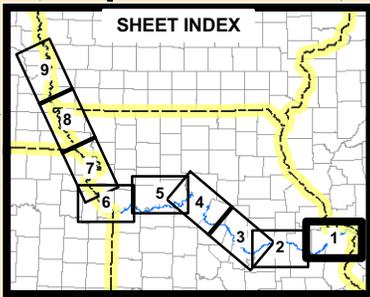
Note: Condition assessment categories are defined in Section 2.1.2.

Cargo Handling	No. of Facilities (Active Only)
Petroleum & Petroleum Products	2
Manufactured Goods	1
Chemicals	5
Crude Materials	21
Food & Farm	3
Manufactured Equipment	1

Of the 29 active facilities, 17 receive sand as their primary cargo. Eight of the remaining 12 active facilities are special purpose facilities built to move a specific commodity, while four have the capability to handle more than one cargo. Only two fleeting areas and one fueling service were present amongst the active facilities.

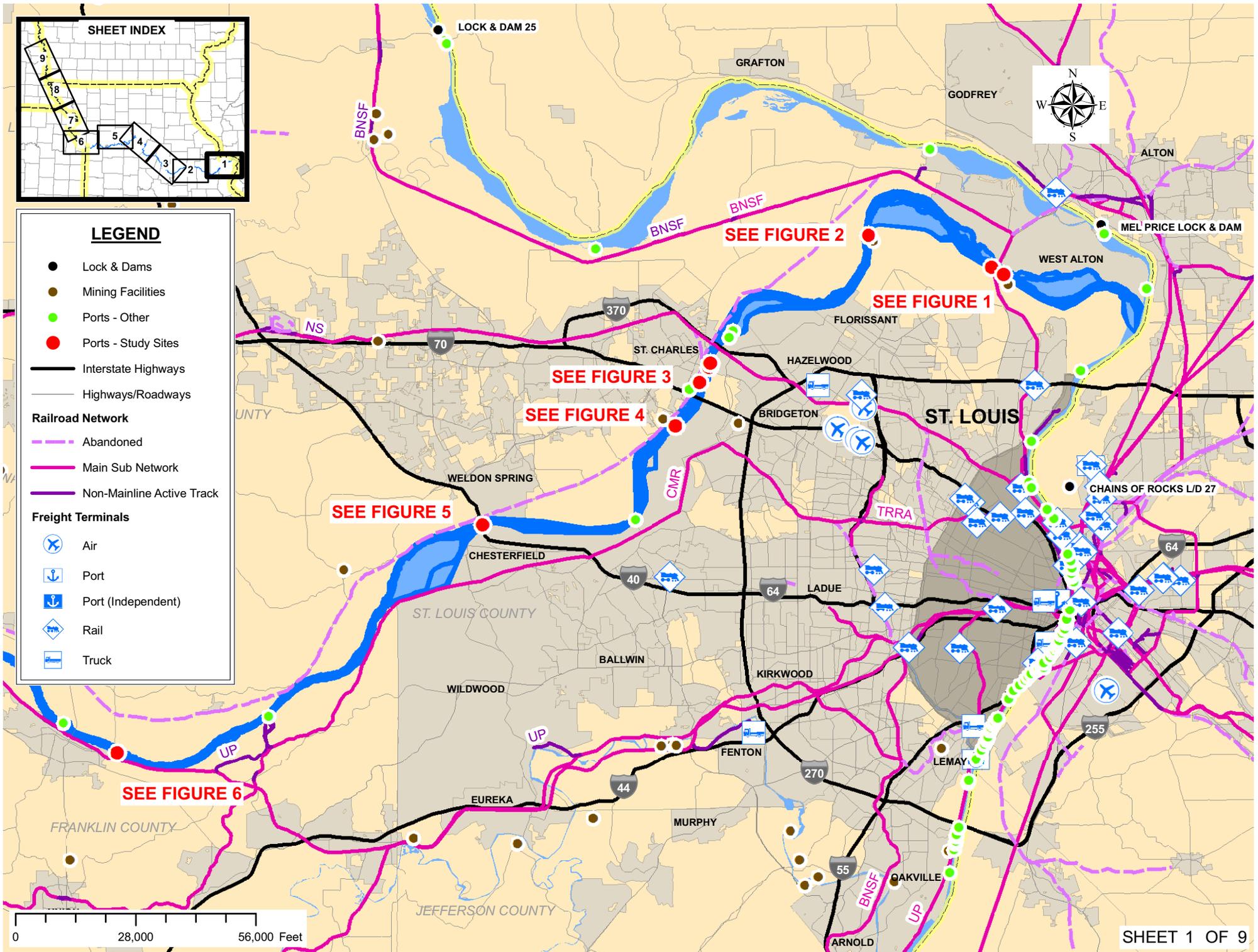
While examining the inventory tables and figures, the reader may note that there exist some gaps in the total number of inventory items or locations. For example, there is no #3 and there are several “unused” numbers between #107 and #134. This is due to the way in which the data points were initially identified and mapped. Some of the locations initially identified were later determined not to be applicable to the study (e.g., public boat ramps, facilities outside the study area, etc.). Those inapplicable items were not included in the final inventory, while the total group of inventory items was not renumbered. This was done to avoid mistakes in cross-referencing the various tables and figures as they were already well underway in the process of development.

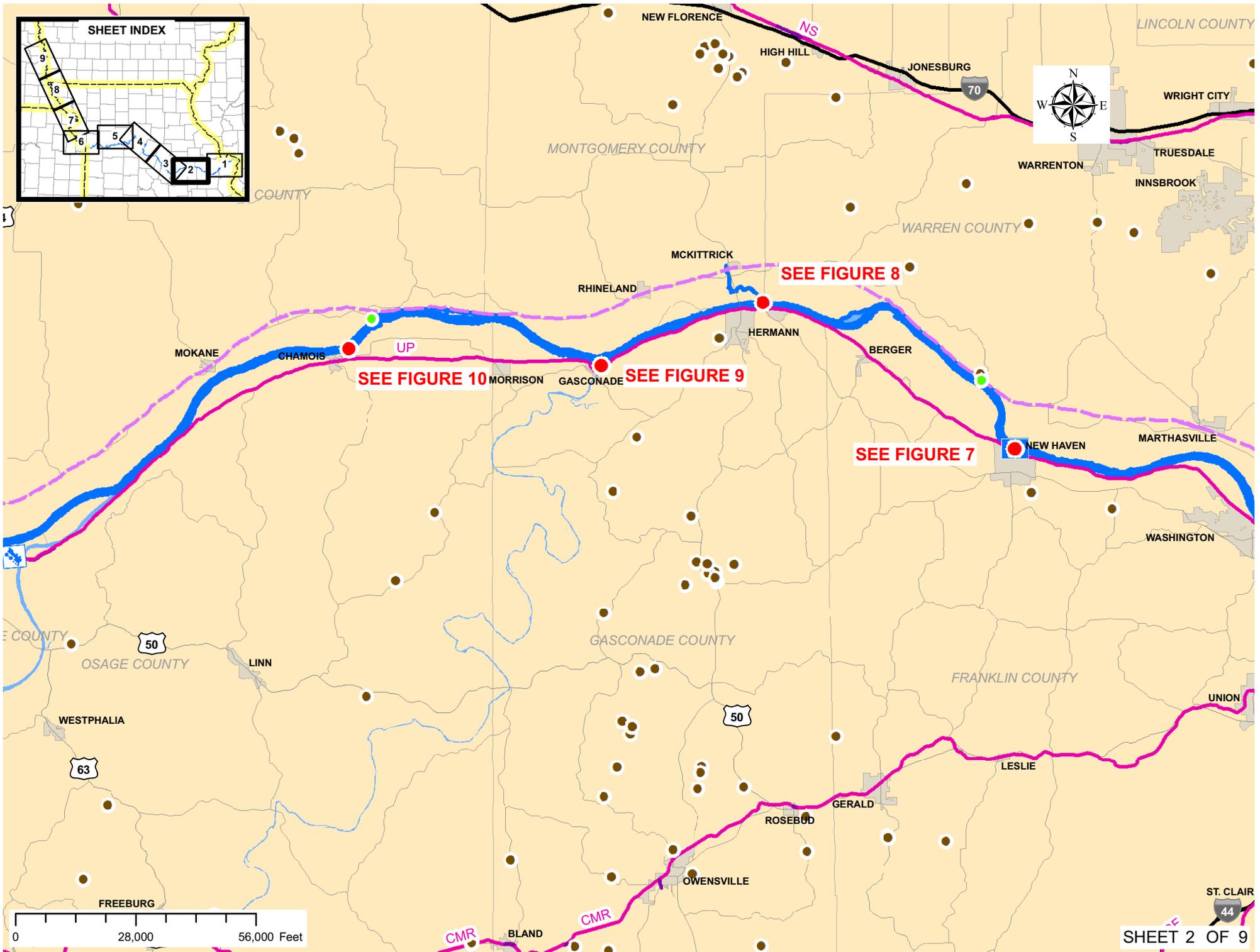
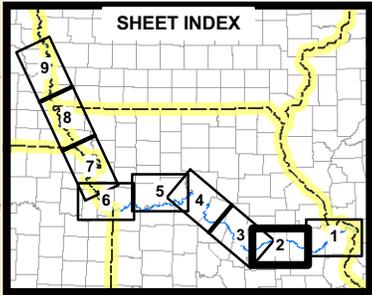




LEGEND

- Lock & Dams
- Mining Facilities
- Ports - Other
- Ports - Study Sites
- Interstate Highways
- Highways/Roadways
- Railroad Network**
- - - Abandoned
- Main Sub Network
- Non-Mainline Active Track
- Freight Terminals**
- ✈ Air
- ⚓ Port
- ⚓ Port (Independent)
- 🚂 Rail
- 🚚 Truck



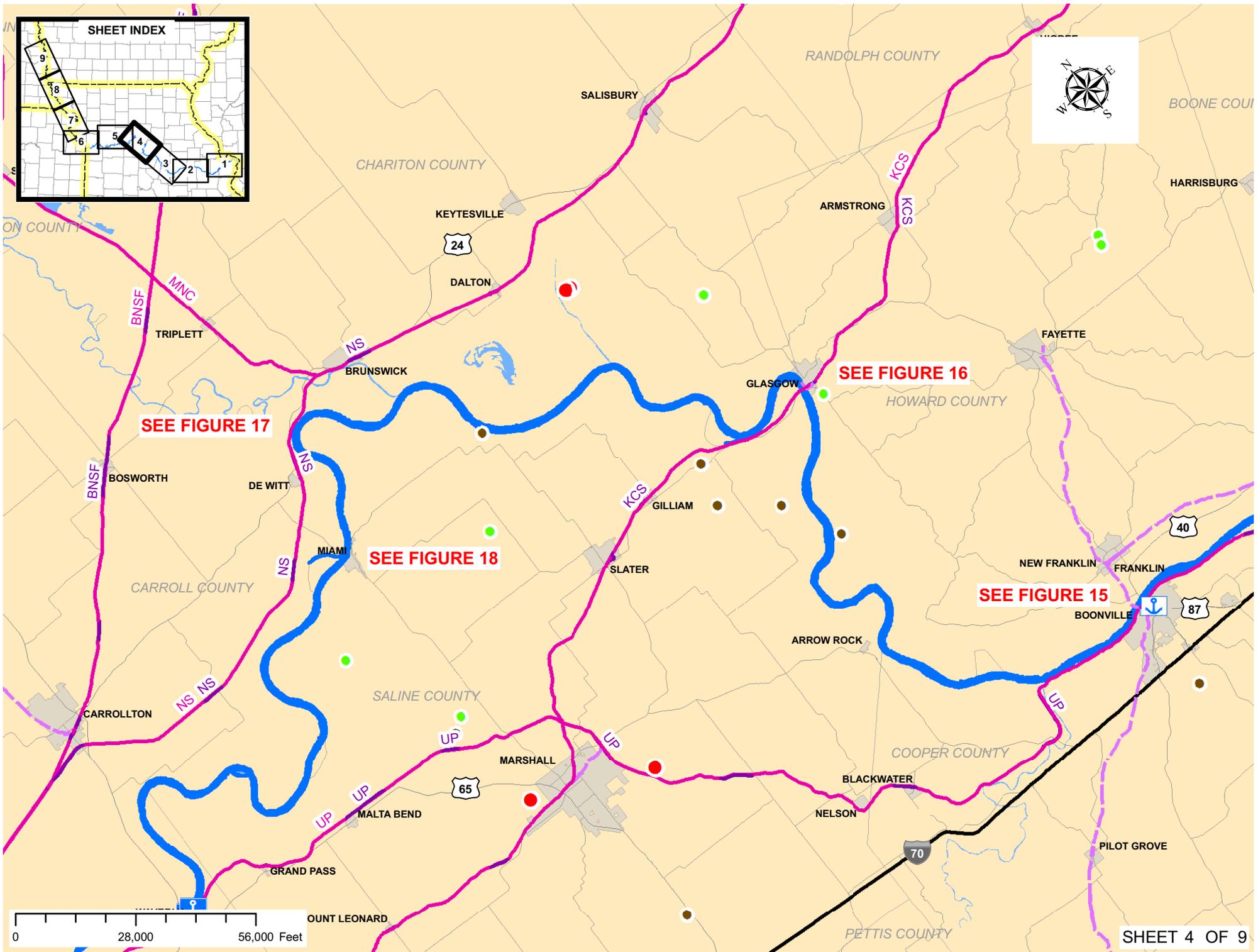
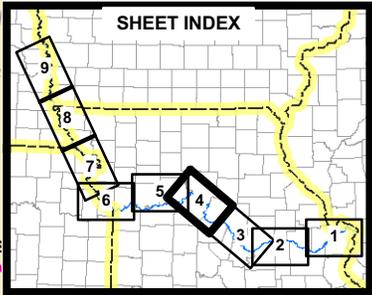


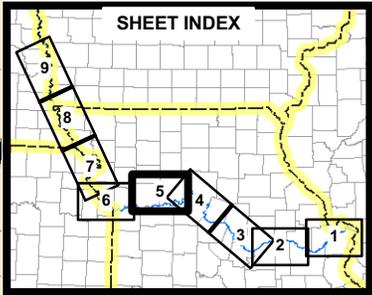
SEE FIGURE 10

SEE FIGURE 9

SEE FIGURE 8

SEE FIGURE 7



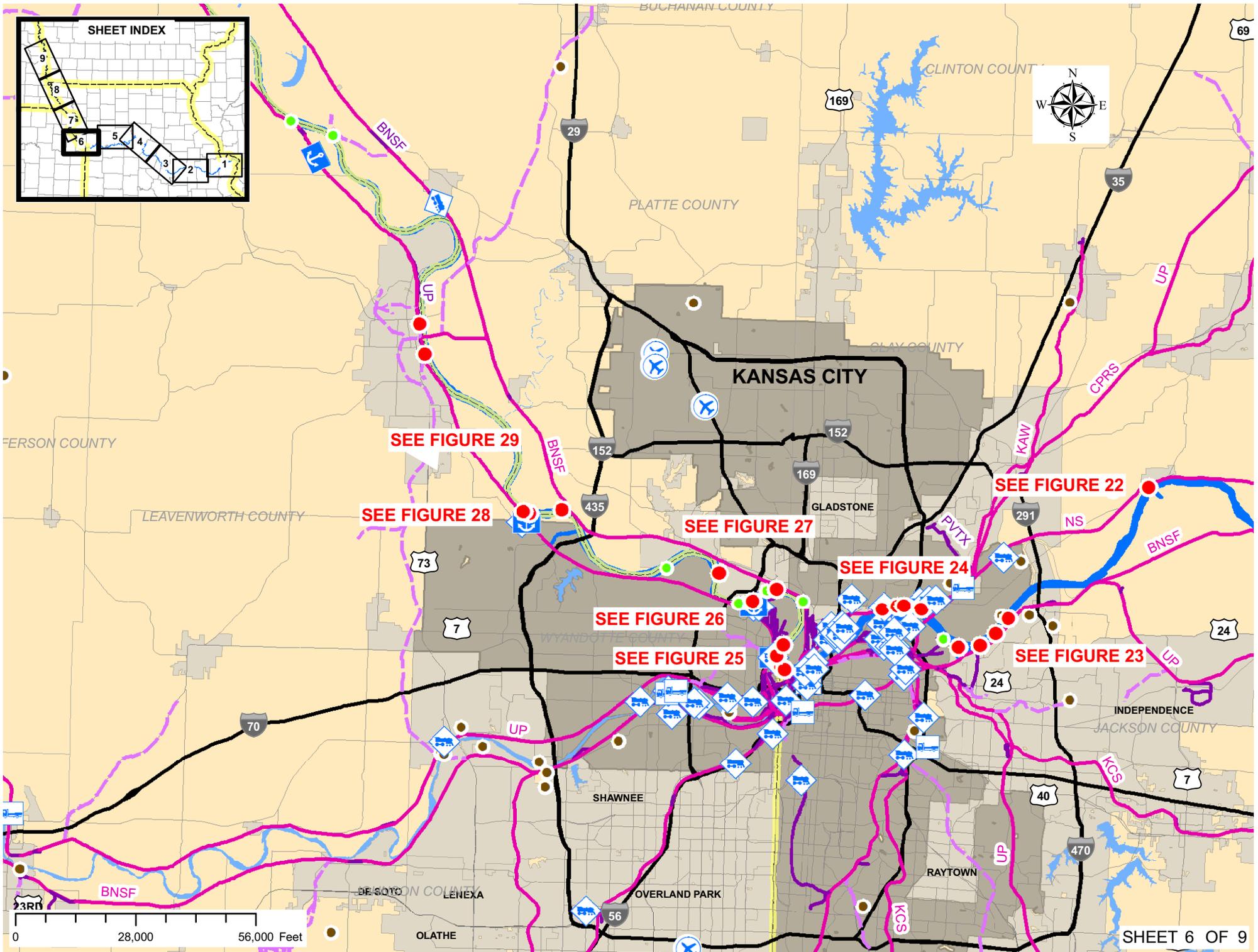
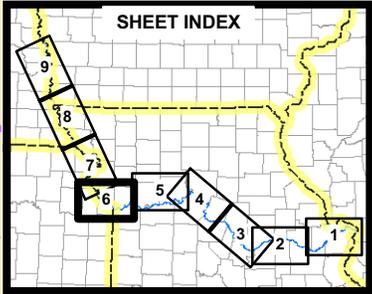


SEE FIGURE 18

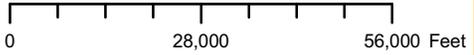
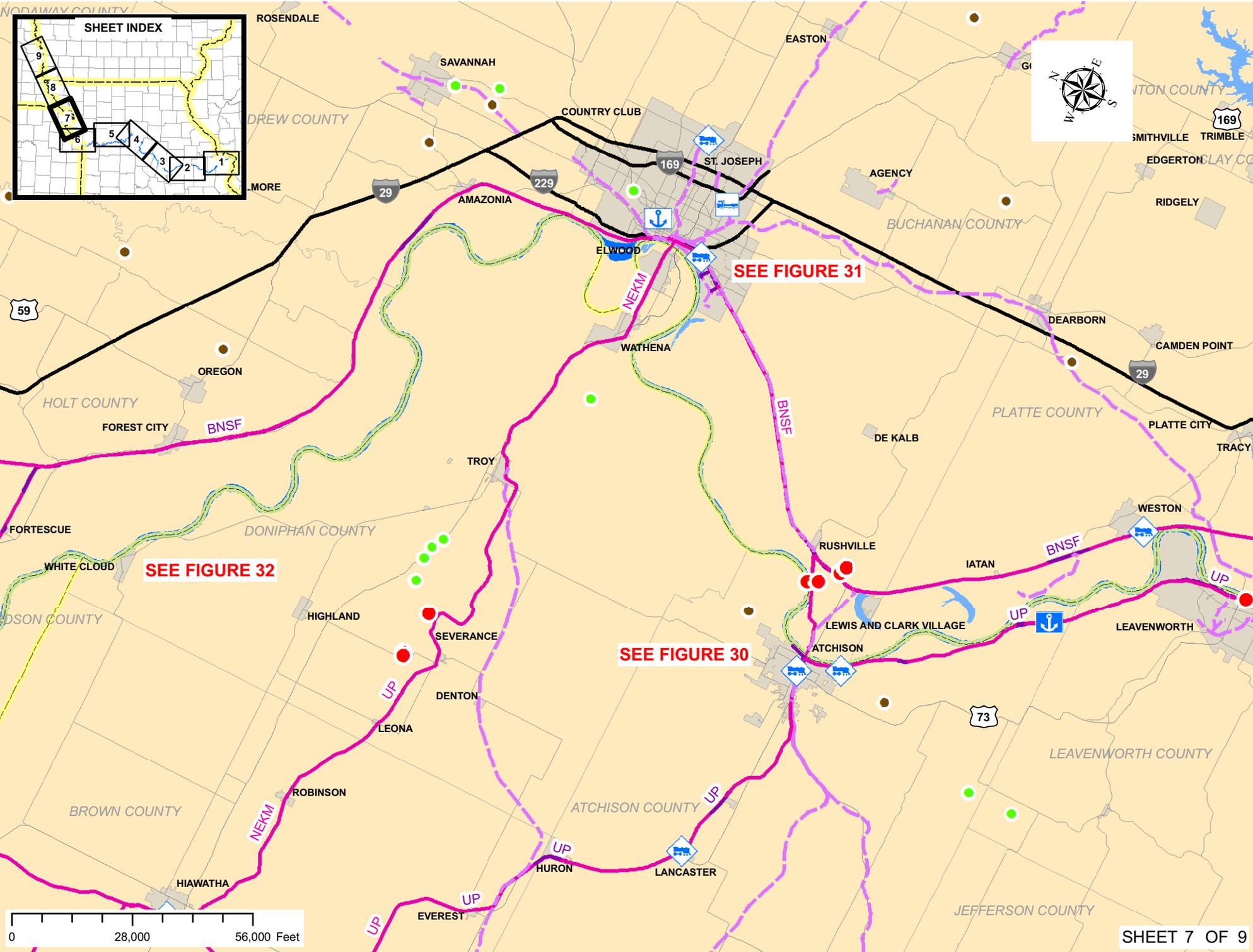
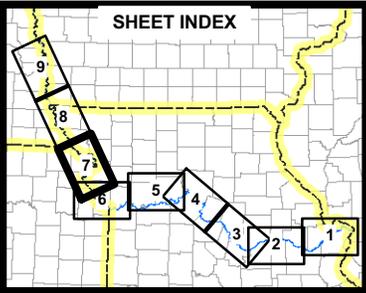
SEE FIGURE 19

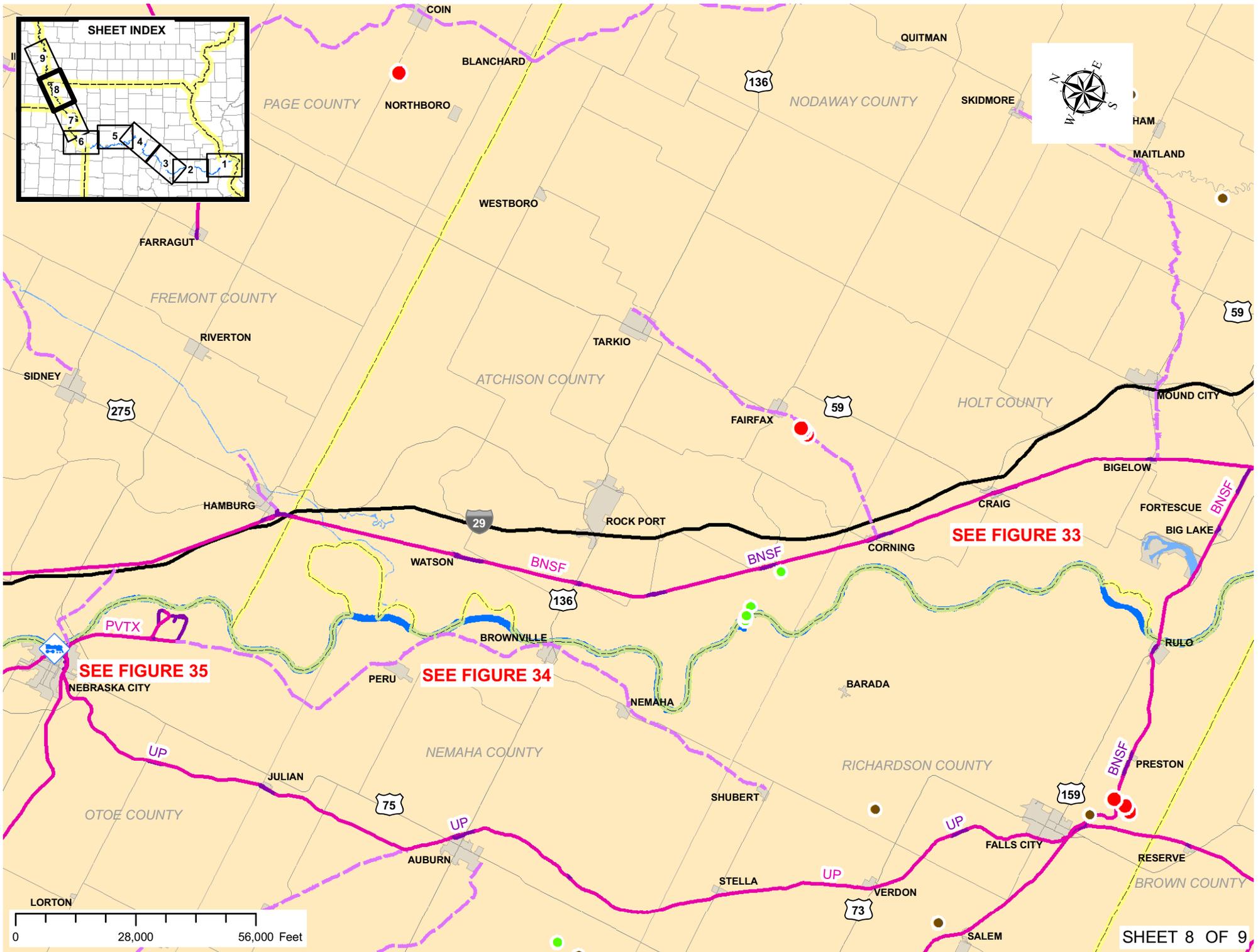
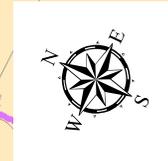
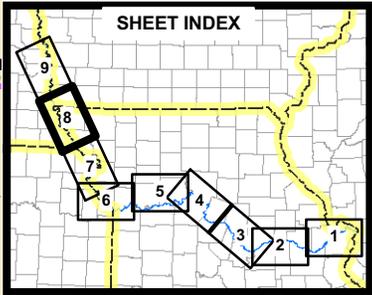
SEE FIGURE 21

SEE FIGURE 20



0 28,000 56,000 Feet

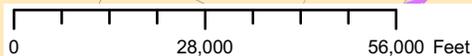


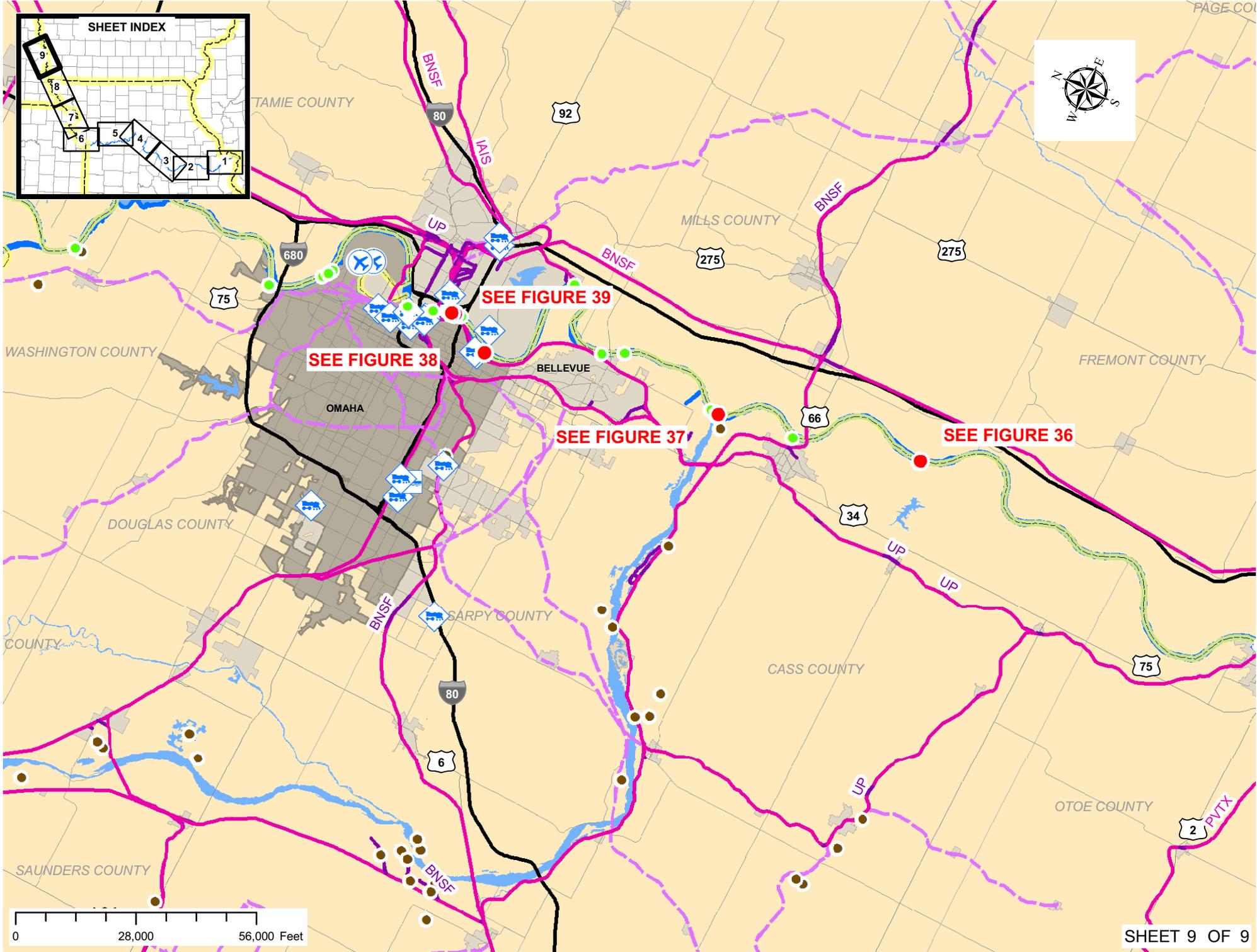
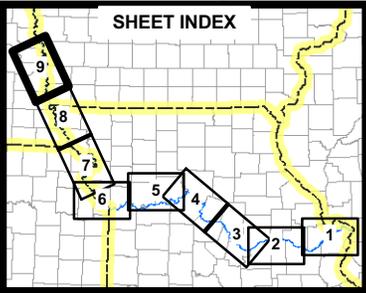


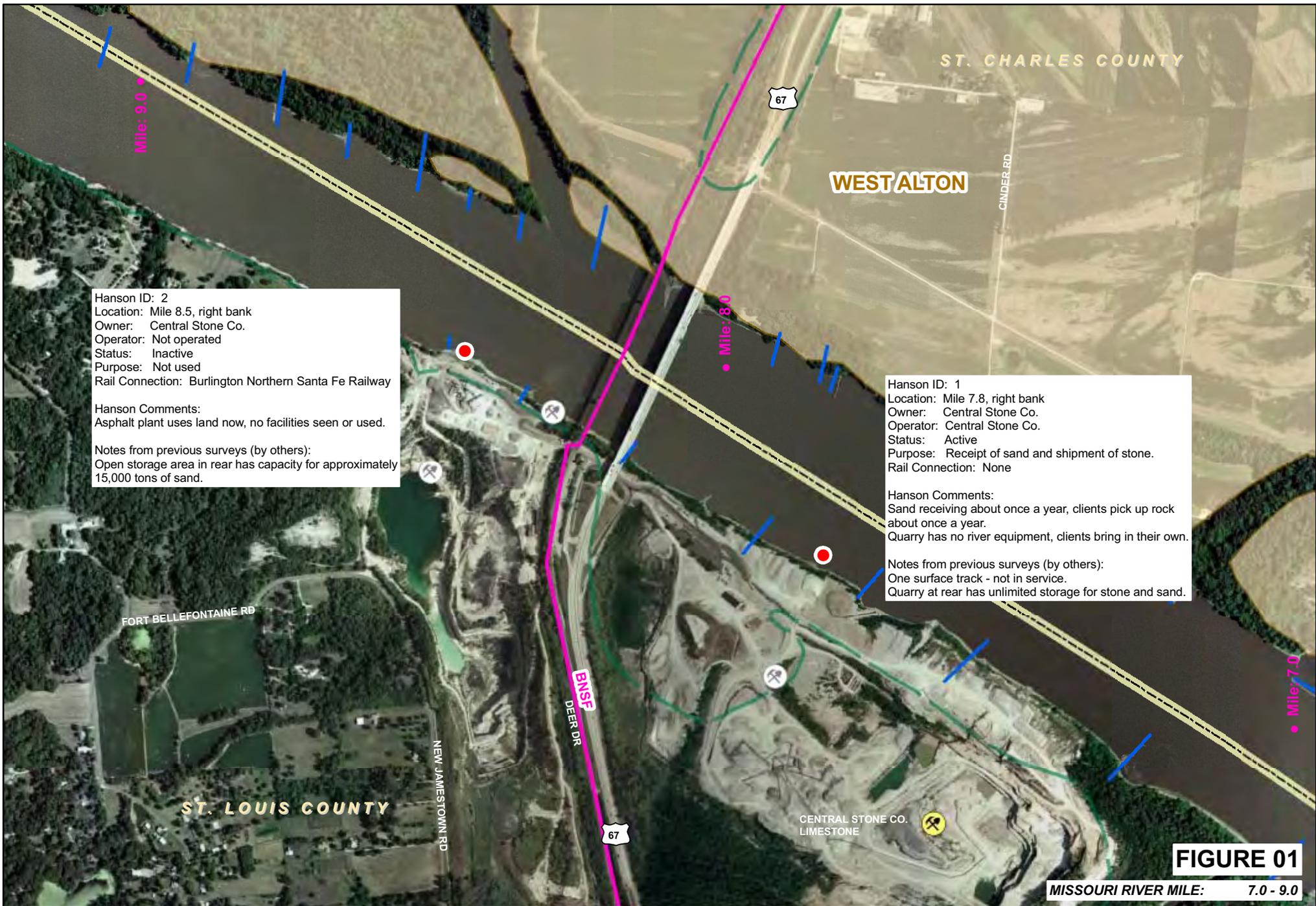
SEE FIGURE 33

SEE FIGURE 35

SEE FIGURE 34



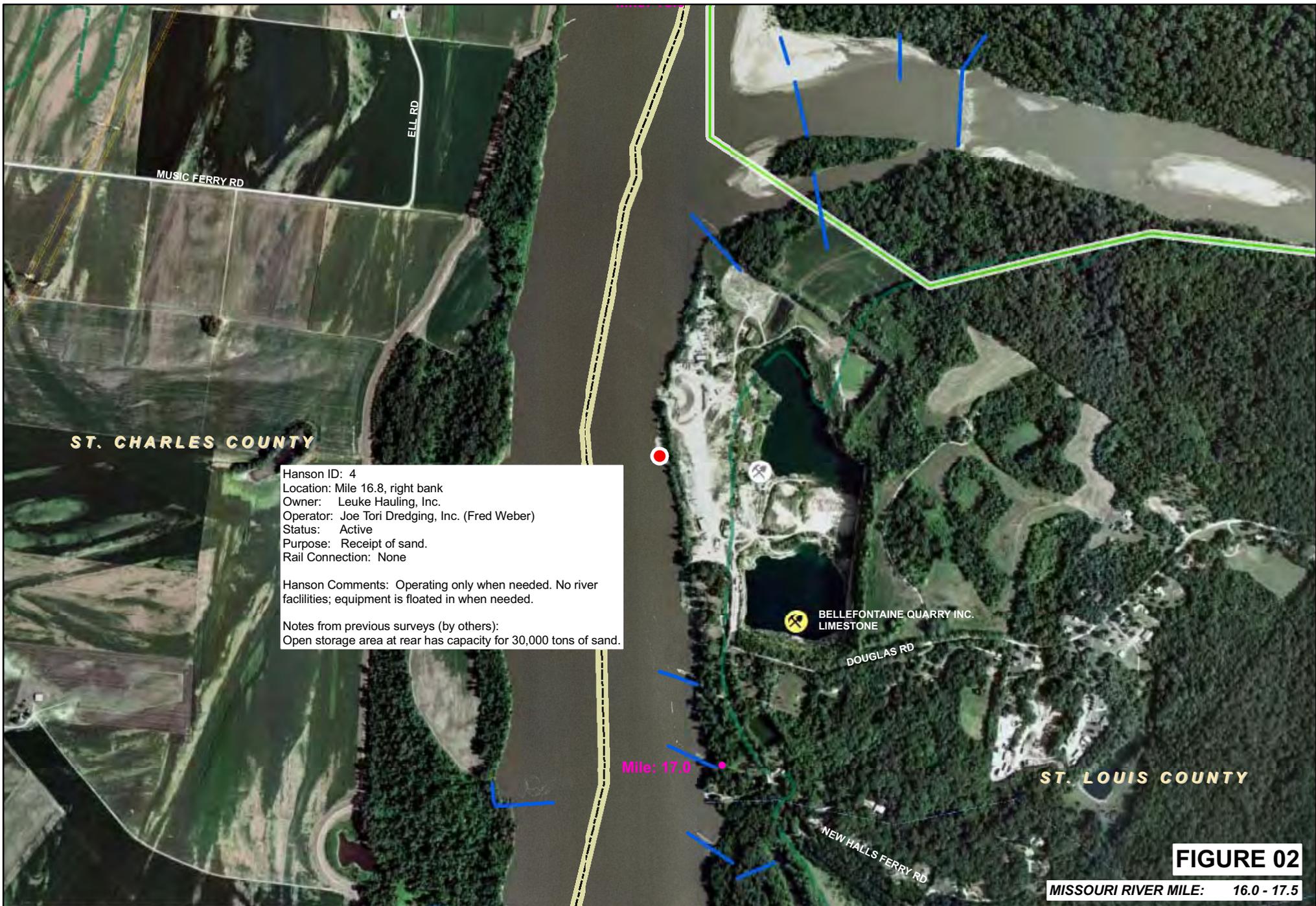




SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 4
 Location: Mile 16.8, right bank
 Owner: Leuke Hauling, Inc.
 Operator: Joe Tori Dredging, Inc. (Fred Weber)
 Status: Active
 Purpose: Receipt of sand.
 Rail Connection: None

Hanson Comments: Operating only when needed. No river facilities; equipment is floated in when needed.

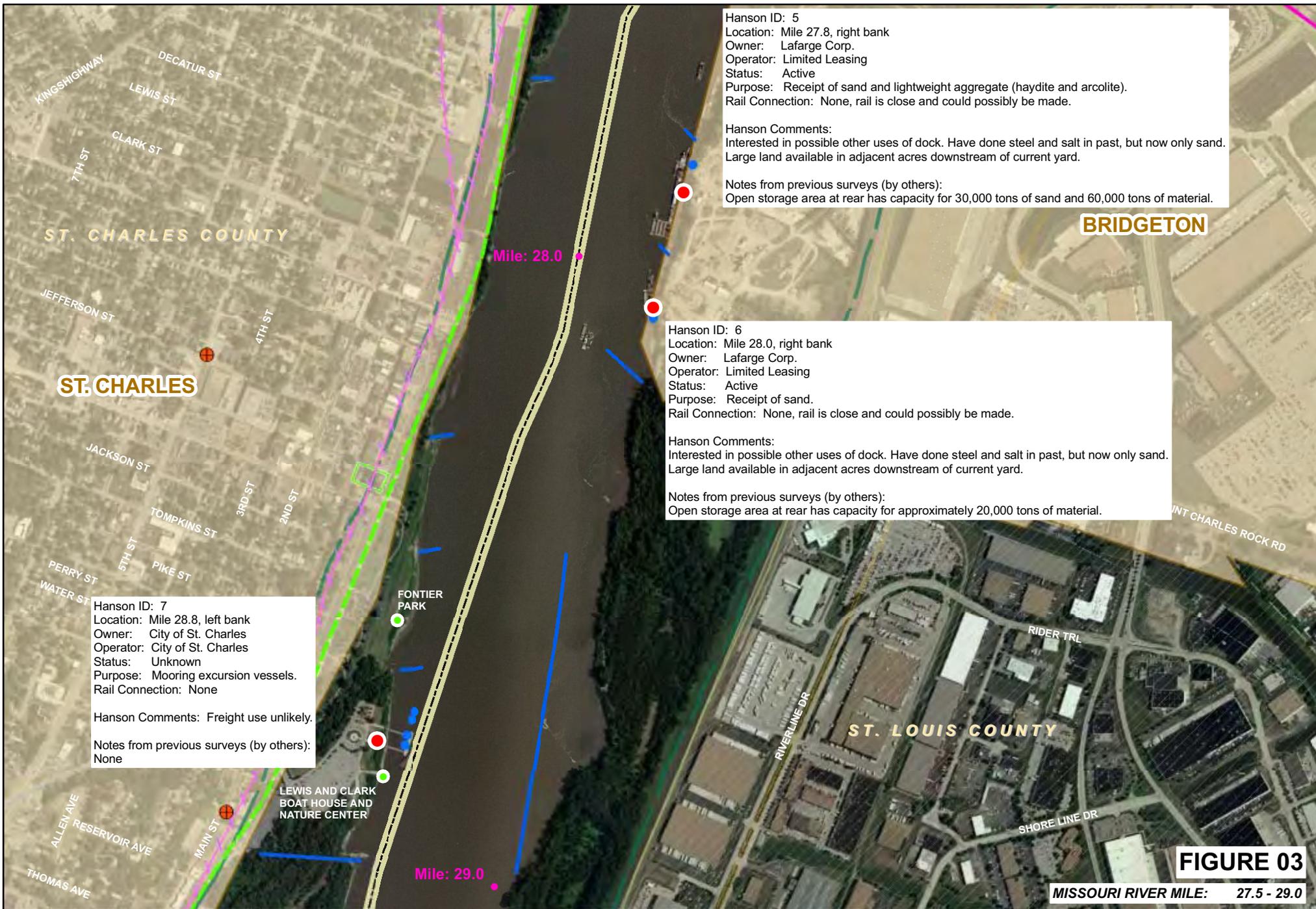
Notes from previous surveys (by others):
 Open storage area at rear has capacity for 30,000 tons of sand.

FIGURE 02

MISSOURI RIVER MILE: 16.0 - 17.5

SCALE = 1: 12000

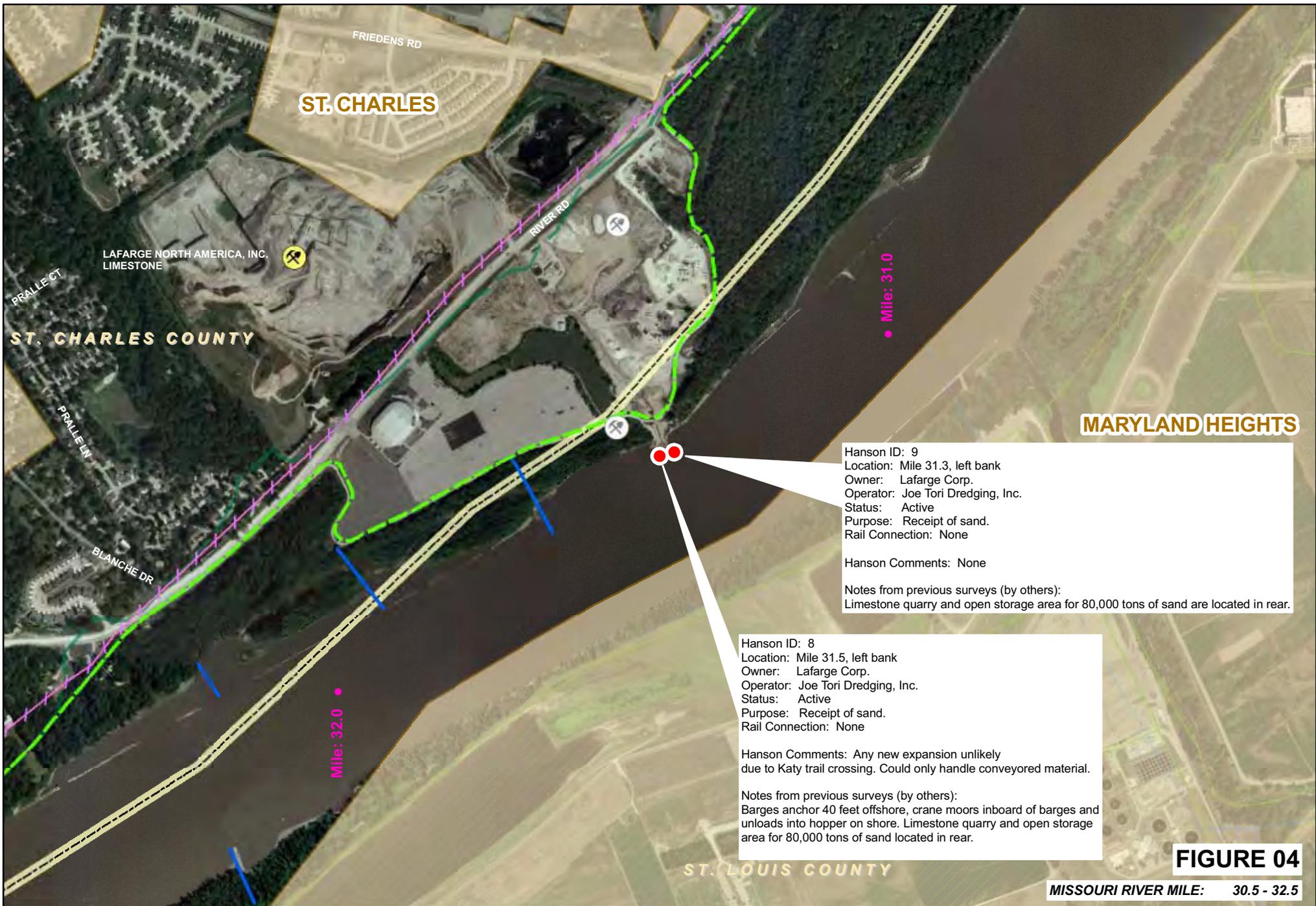




SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 9
 Location: Mile 31.3, left bank
 Owner: Lafarge Corp.
 Operator: Joe Tori Dredging, Inc.
 Status: Active
 Purpose: Receipt of sand.
 Rail Connection: None

Hanson Comments: None

Notes from previous surveys (by others):
 Limestone quarry and open storage area for 80,000 tons of sand are located in rear.

Hanson ID: 8
 Location: Mile 31.5, left bank
 Owner: Lafarge Corp.
 Operator: Joe Tori Dredging, Inc.
 Status: Active
 Purpose: Receipt of sand.
 Rail Connection: None

Hanson Comments: Any new expansion unlikely due to Katy trail crossing. Could only handle conveyed material.

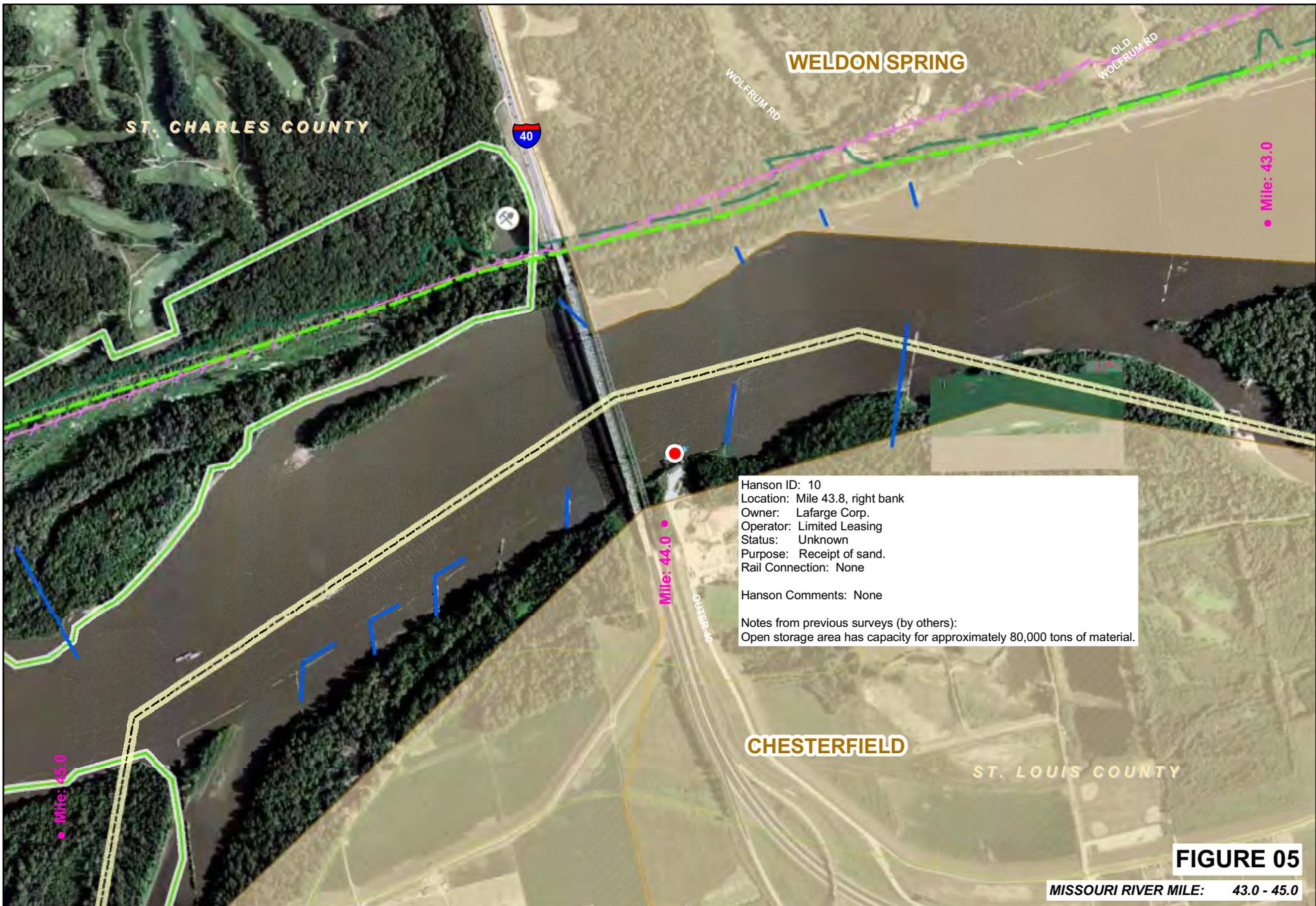
Notes from previous surveys (by others):
 Barges anchor 40 feet offshore, crane moors inboard of barges and unloads into hopper on shore. Limestone quarry and open storage area for 80,000 tons of sand located in rear.

FIGURE 04

MISSOURI RIVER MILE: 30.5 - 32.5

SCALE = 1: 12000

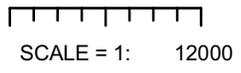
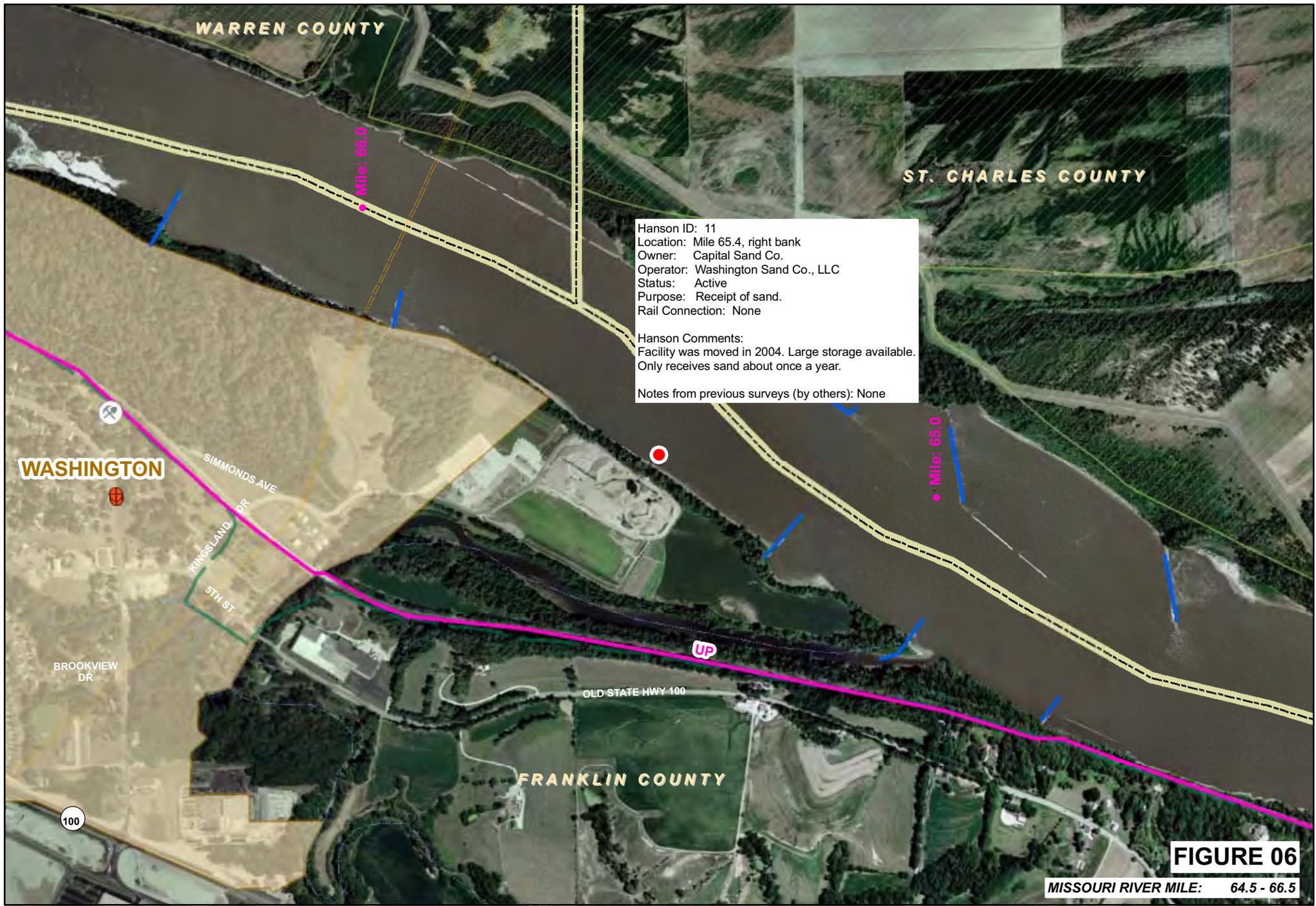


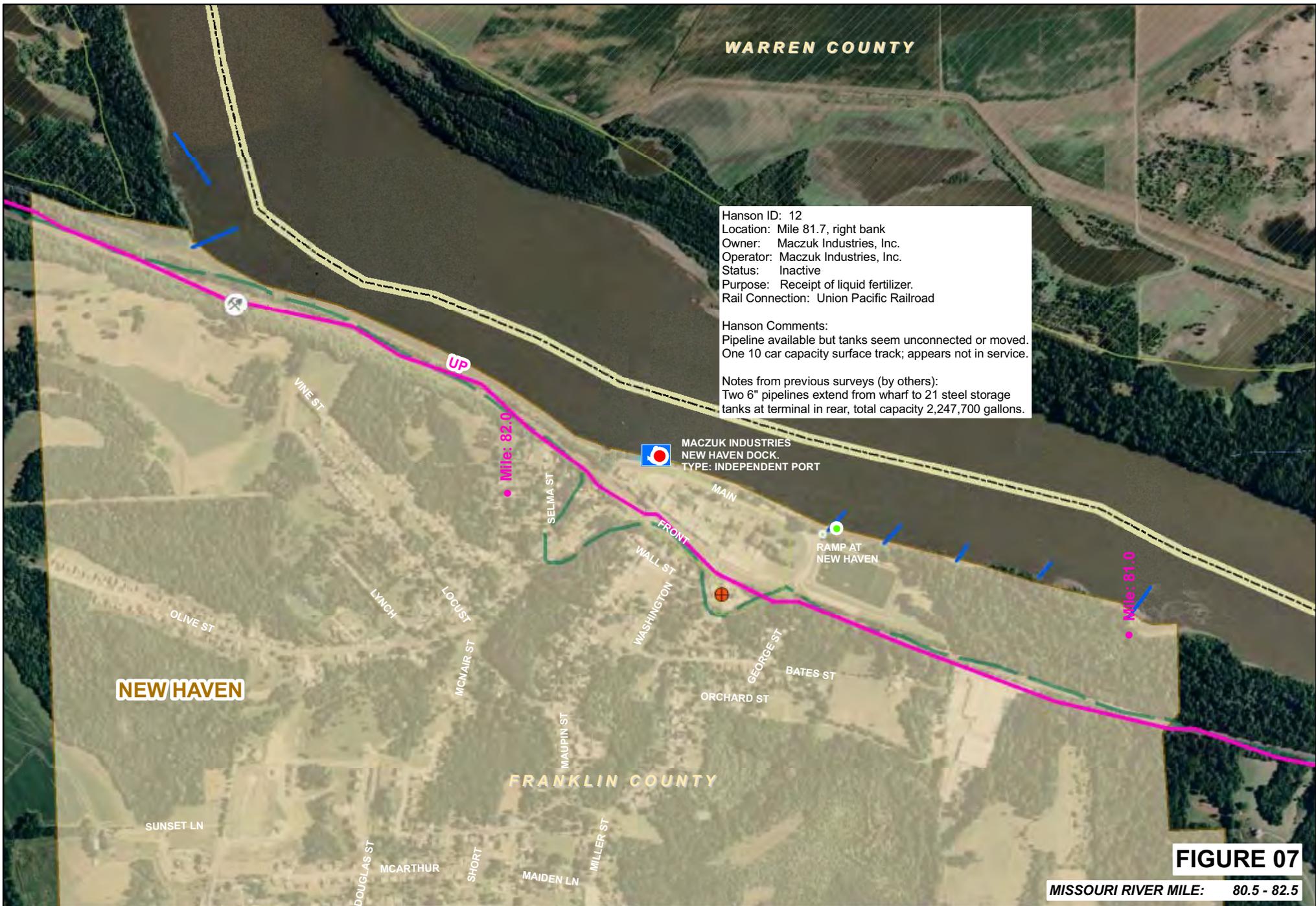


SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)





Hanson ID: 12
 Location: Mile 81.7, right bank
 Owner: Maczuk Industries, Inc.
 Operator: Maczuk Industries, Inc.
 Status: Inactive
 Purpose: Receipt of liquid fertilizer.
 Rail Connection: Union Pacific Railroad

Hanson Comments:
 Pipeline available but tanks seem unconnected or moved.
 One 10 car capacity surface track; appears not in service.

Notes from previous surveys (by others):
 Two 6" pipelines extend from wharf to 21 steel storage tanks at terminal in rear, total capacity 2,247,700 gallons.


 MACZUK INDUSTRIES
 NEW HAVEN DOCK.
 TYPE: INDEPENDENT PORT


 RAMP AT
 NEW HAVEN

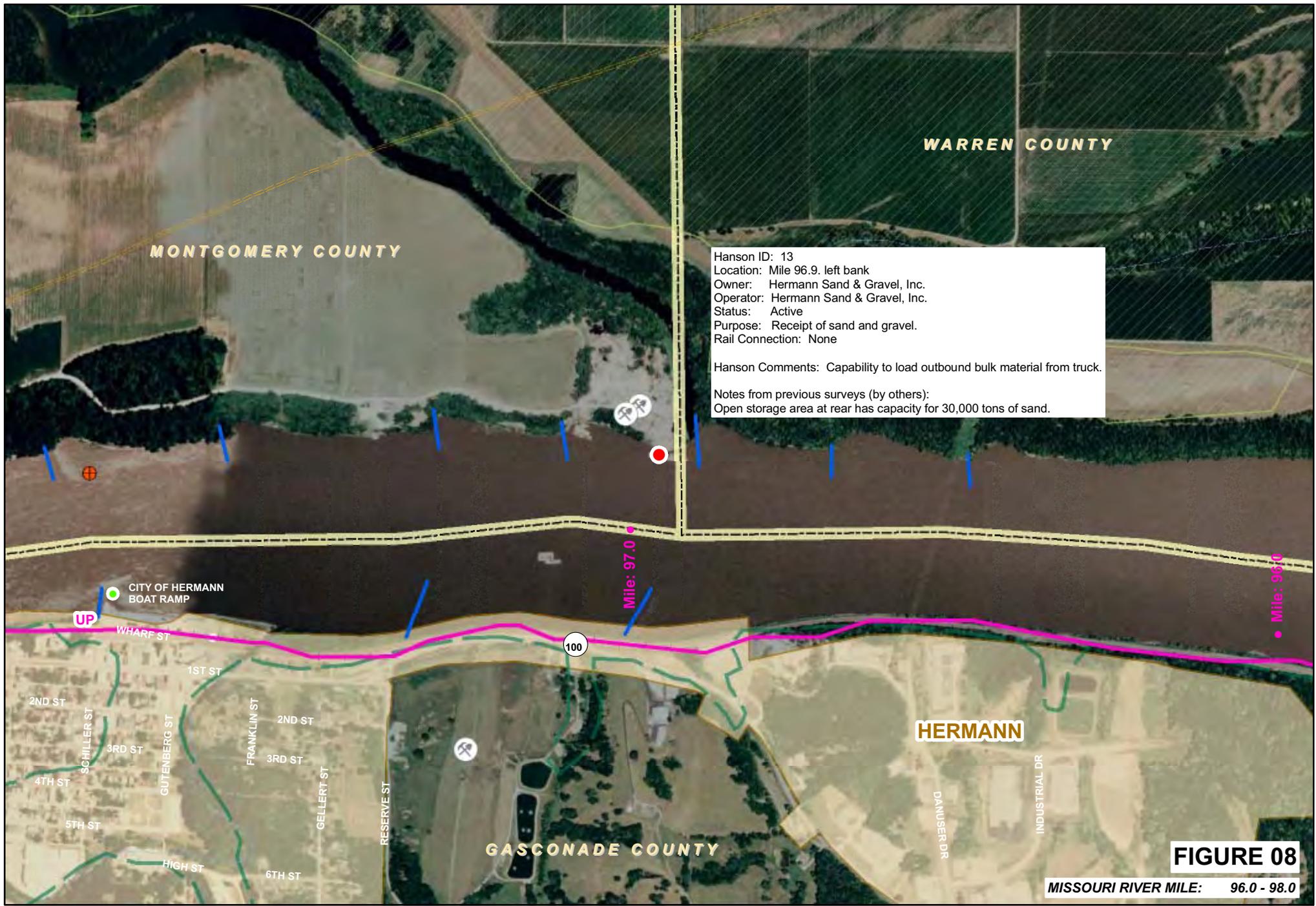
FIGURE 07

MISSOURI RIVER MILE: 80.5 - 82.5


 SCALE = 1: 12000



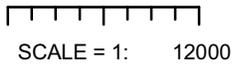
PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 13
 Location: Mile 96.9. left bank
 Owner: Hermann Sand & Gravel, Inc.
 Operator: Hermann Sand & Gravel, Inc.
 Status: Active
 Purpose: Receipt of sand and gravel.
 Rail Connection: None

Hanson Comments: Capability to load outbound bulk material from truck.

Notes from previous surveys (by others):
 Open storage area at rear has capacity for 30,000 tons of sand.



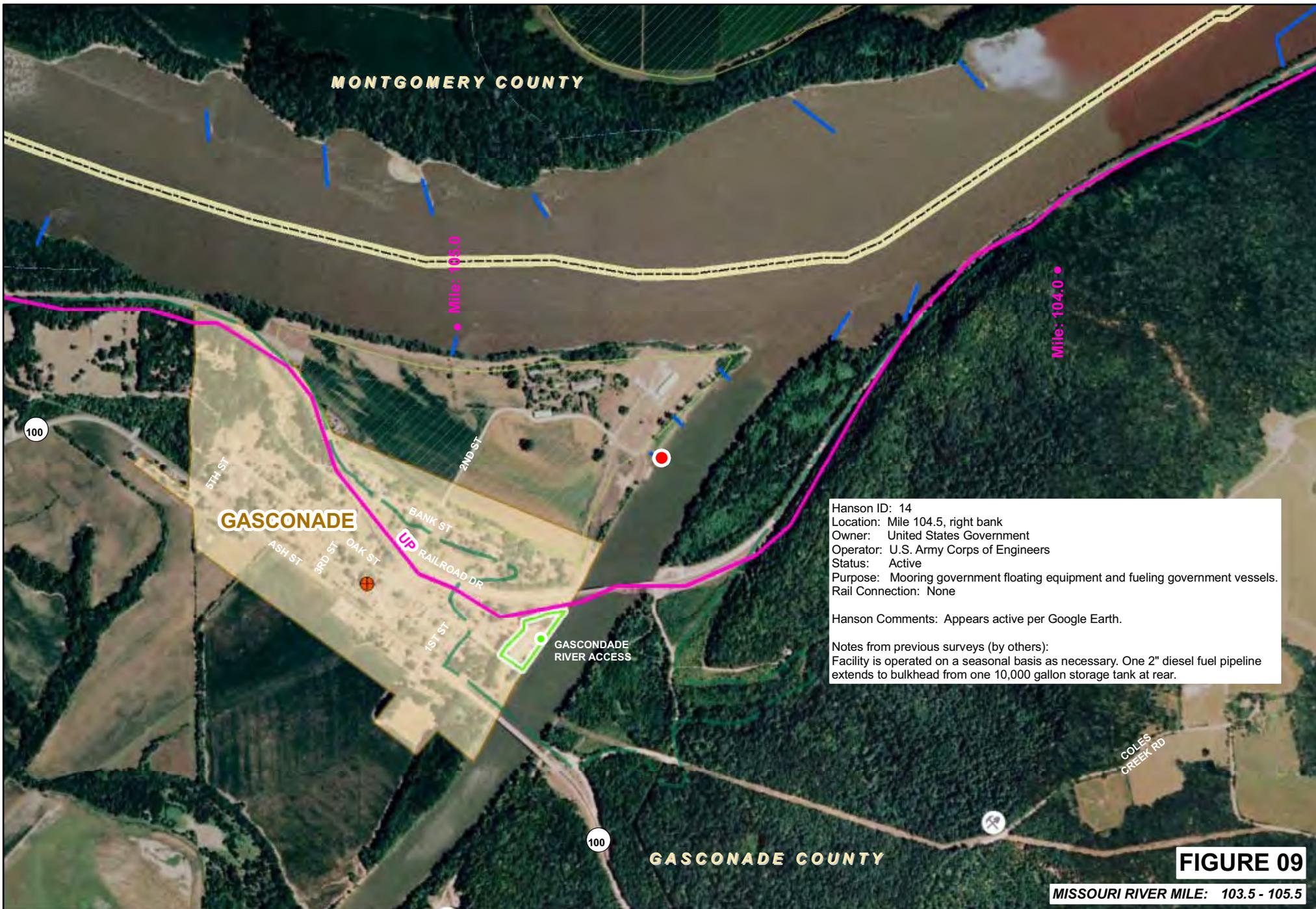


FIGURE 09

MISSOURI RIVER MILE: 103.5 - 105.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



CALLAWAY COUNTY

Hanson ID: 105
 Location: Mile 138.5, left bank
 Owner: Capital Sand & Gravel
 Operator: Capital Sand & Gravel
 Status: Unknown
 Purpose: Spud barge (dredge) area - equipment landing area.
 Rail Connection: None

Hanson Comments:
 Mapquest shows no equipment but some barges on bank.
 Crane and equipment transfer and connector to CR 4038.
 Reported as having new crane and cell.

Notes from previous surveys (by others): None

Mile: 139.0

Mile: 138.0

UP

UP

ALGOA RD

SHAMROCK RD

COLE COUNTY

MILLTIA RD

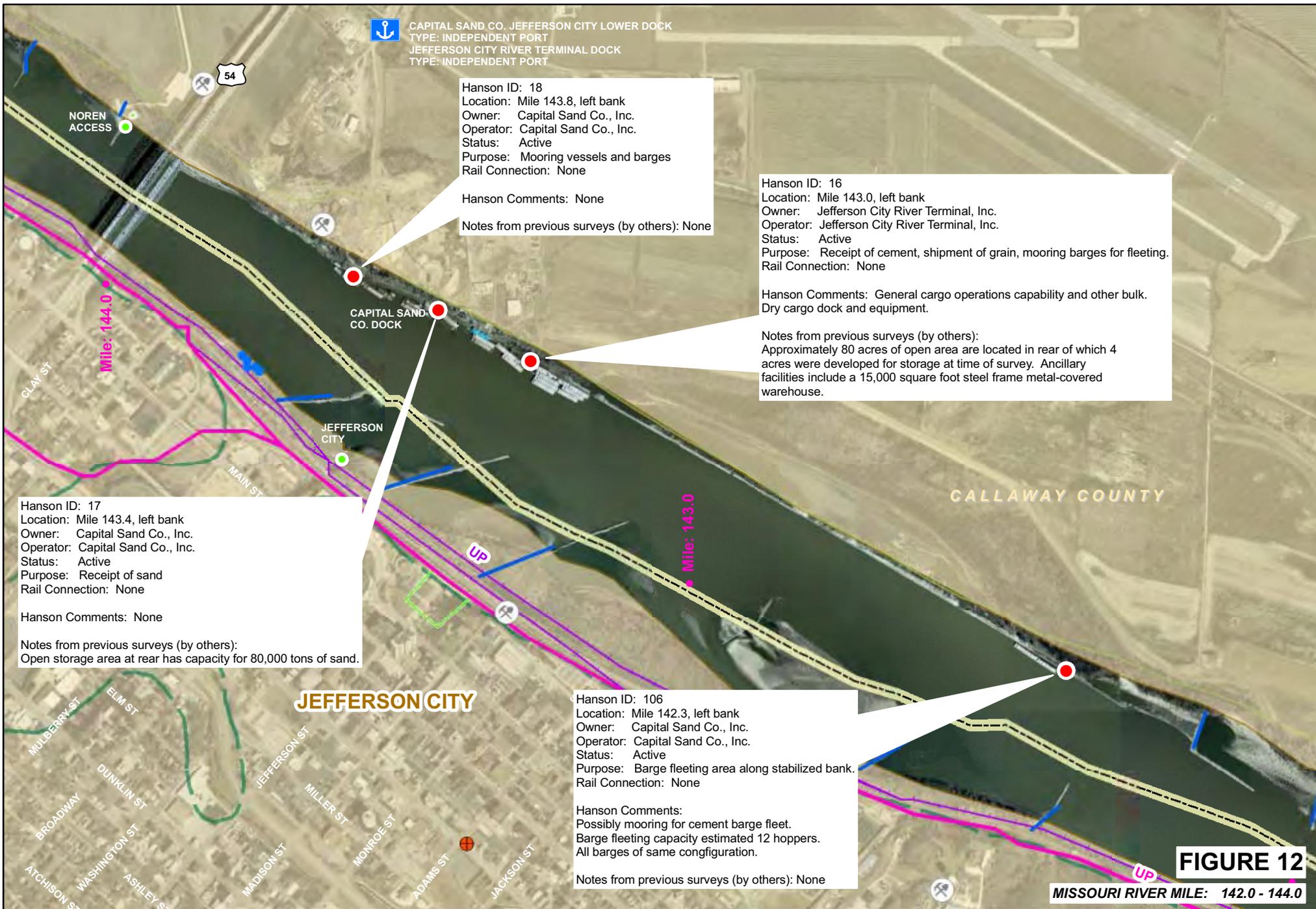
FIGURE 11

MISSOURI RIVER MILE: 137.5 - 139.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



 CAPITAL SAND CO. JEFFERSON CITY LOWER DOCK
 TYPE: INDEPENDENT PORT
 JEFFERSON CITY RIVER TERMINAL DOCK
 TYPE: INDEPENDENT PORT

Hanson ID: 18
 Location: Mile 143.8, left bank
 Owner: Capital Sand Co., Inc.
 Operator: Capital Sand Co., Inc.
 Status: Active
 Purpose: Mooring vessels and barges
 Rail Connection: None
 Hanson Comments: None
 Notes from previous surveys (by others): None

Hanson ID: 16
 Location: Mile 143.0, left bank
 Owner: Jefferson City River Terminal, Inc.
 Operator: Jefferson City River Terminal, Inc.
 Status: Active
 Purpose: Receipt of cement, shipment of grain, mooring barges for fleet.
 Rail Connection: None
 Hanson Comments: General cargo operations capability and other bulk. Dry cargo dock and equipment.
 Notes from previous surveys (by others): Approximately 80 acres of open area are located in rear of which 4 acres were developed for storage at time of survey. Ancillary facilities include a 15,000 square foot steel frame metal-covered warehouse.

Hanson ID: 17
 Location: Mile 143.4, left bank
 Owner: Capital Sand Co., Inc.
 Operator: Capital Sand Co., Inc.
 Status: Active
 Purpose: Receipt of sand
 Rail Connection: None
 Hanson Comments: None
 Notes from previous surveys (by others): Open storage area at rear has capacity for 80,000 tons of sand.

Hanson ID: 106
 Location: Mile 142.3, left bank
 Owner: Capital Sand Co., Inc.
 Operator: Capital Sand Co., Inc.
 Status: Active
 Purpose: Barge fleet area along stabilized bank.
 Rail Connection: None
 Hanson Comments: Possibly mooring for cement barge fleet. Barge fleet capacity estimated 12 hoppers. All barges of same configuration.
 Notes from previous surveys (by others): None

FIGURE 12

MISSOURI RIVER MILE: 142.0 - 144.0

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

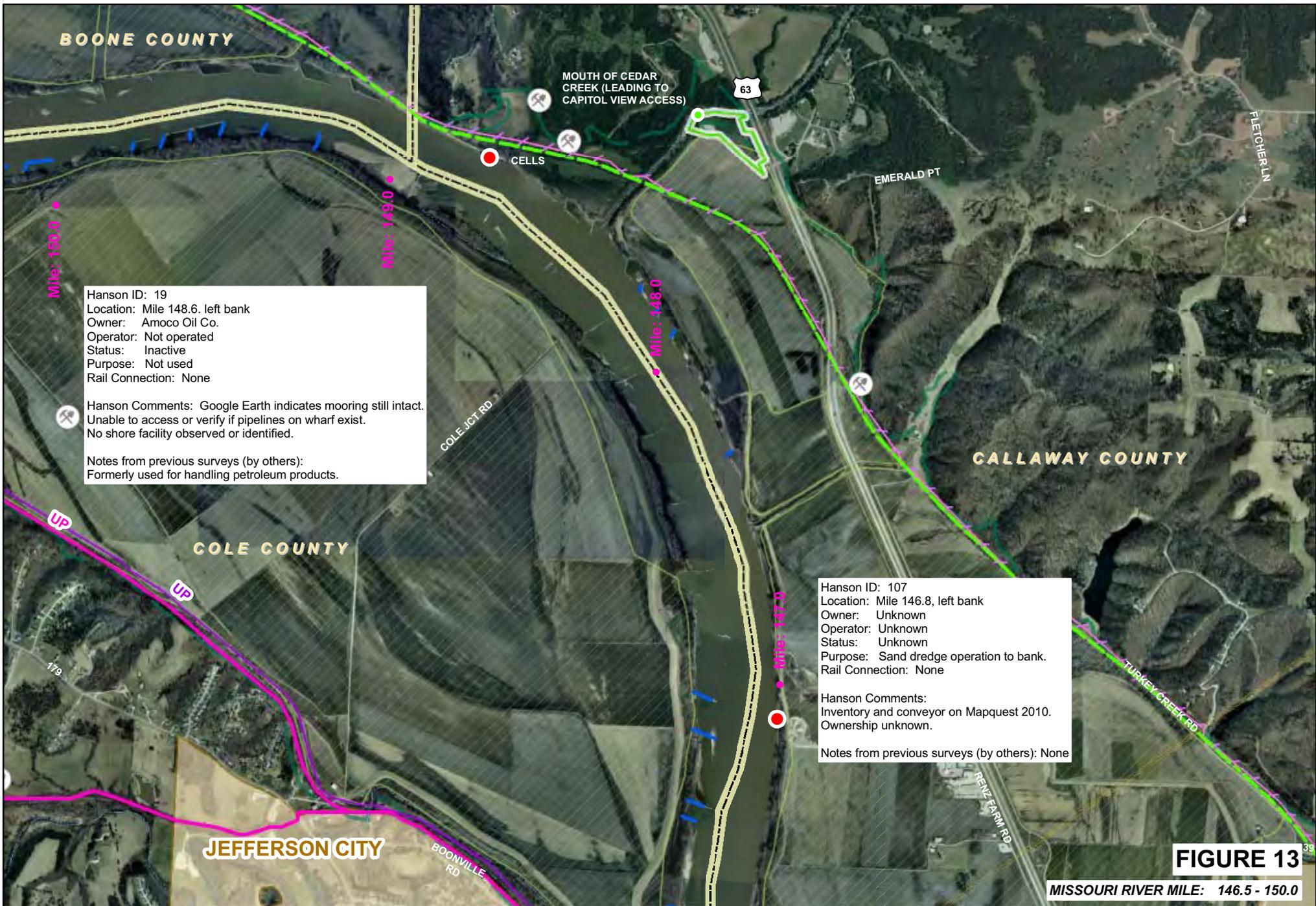


FIGURE 13

MISSOURI RIVER MILE: 146.5 - 150.0

SCALE = 1: 24000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

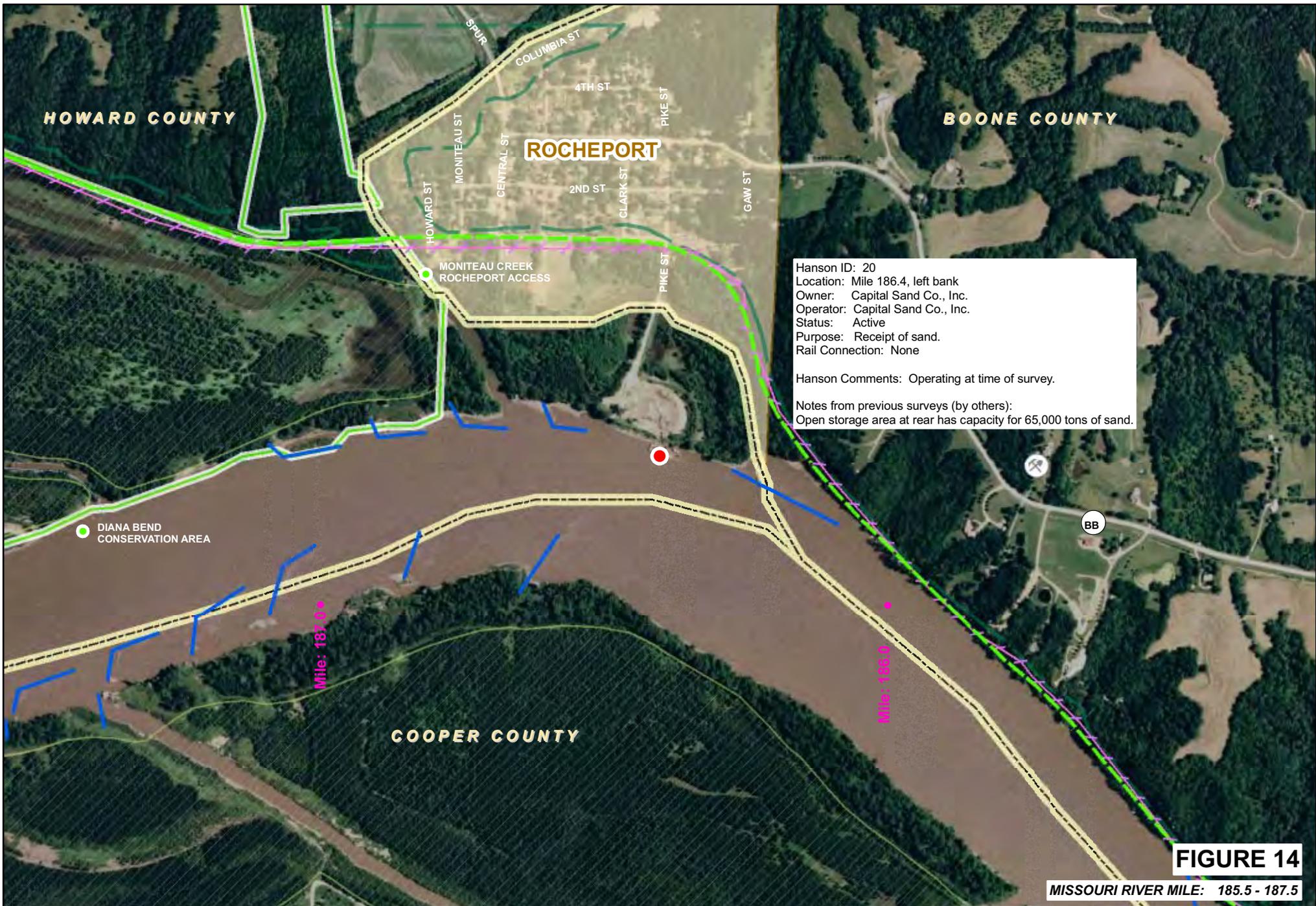


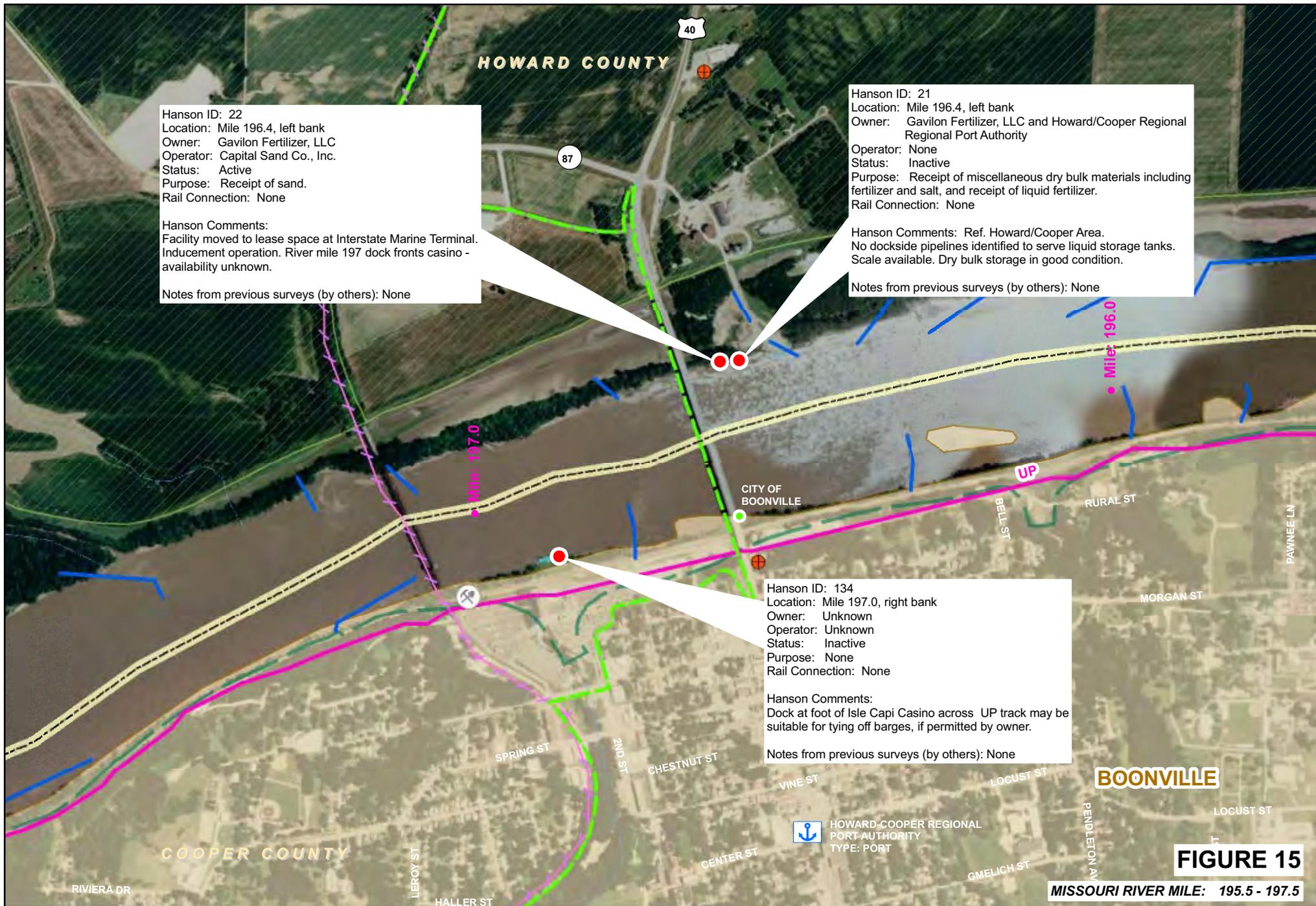
FIGURE 14

MISSOURI RIVER MILE: 185.5 - 187.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 25
 Location: Mile 226.5, left bank
 Owner: United States Government
 Operator: U.S. Army Corps of Engineers
 Status: Active
 Purpose: Mooring government floating equipment, handling supplies and equipment.
 Rail Connection: None

Hanson Comments: None

Notes from previous surveys (by others):
 U.S. Army Corps of Engineers field office and small storage shed located at rear (small dock area).

Hanson ID: 24
 Location: Mile 226.4, left bank
 Owner: MFA Agri Services
 Operator: MFA Agri Services - Glasgow
 Status: Inactive
 Purpose: Shipment of grain.
 Rail Connection: K.C. Southern

Hanson Comments: Reported approximately \$40,000 for equipment repairs.

Notes from previous surveys (by others):
 One surface track with capacity for 15 cars serves loading spout.
 Grain elevator at rear, consisting of 63 concrete silos and interstices, has capacity for 1,220,000 bushels.

Hanson ID: 23
 Location: Mile 226.2, left bank
 Owner: Capital Sand Co., Inc.
 Operator: Glasgow Sand Plant
 Status: Active
 Purpose: Receipt of sand.
 Rail Connection: None

Hanson Comments: Operating at time of survey.

Notes from previous surveys (by others):
 Open storage area at rear has capacity for 31,000 tons of sand.

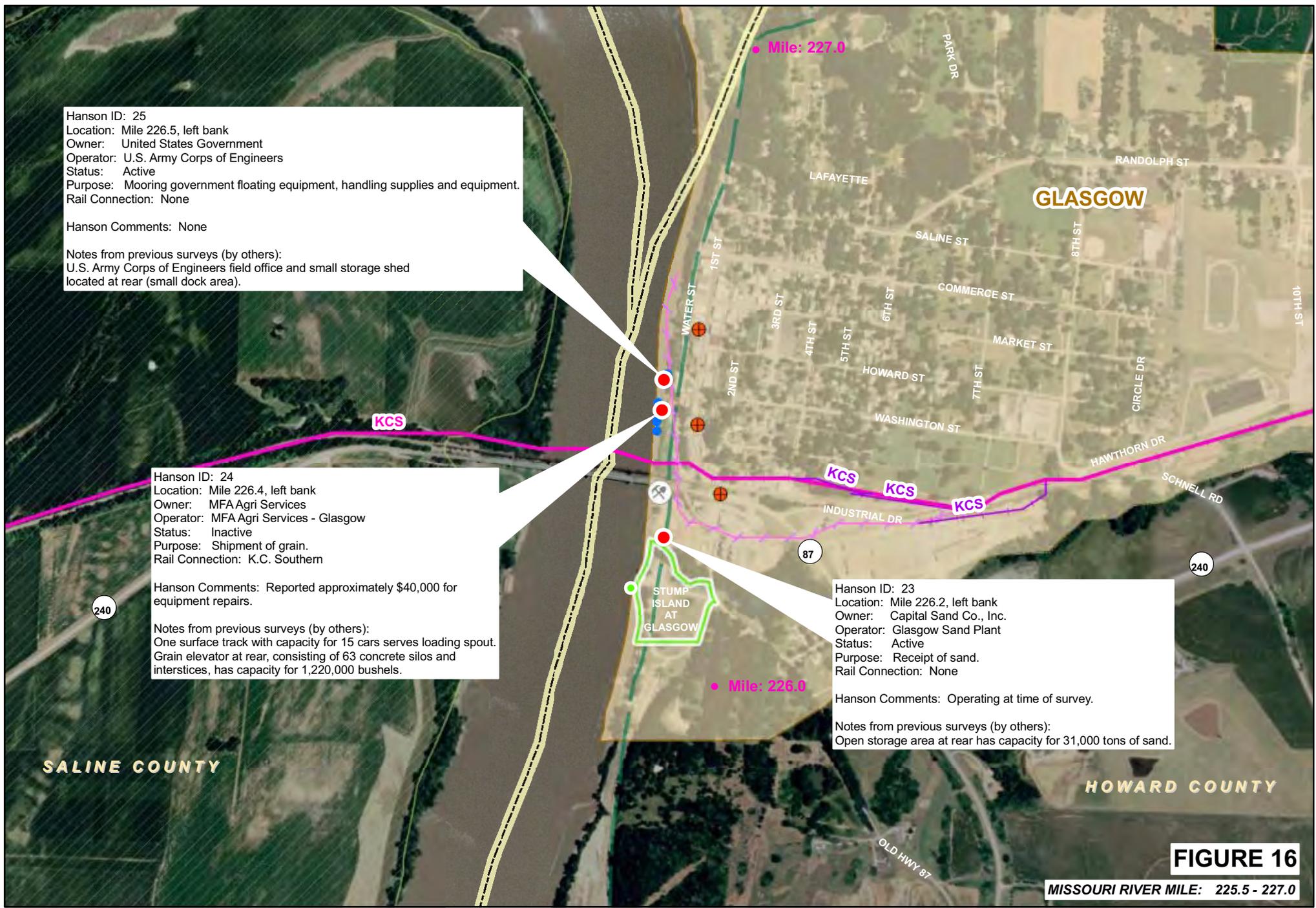


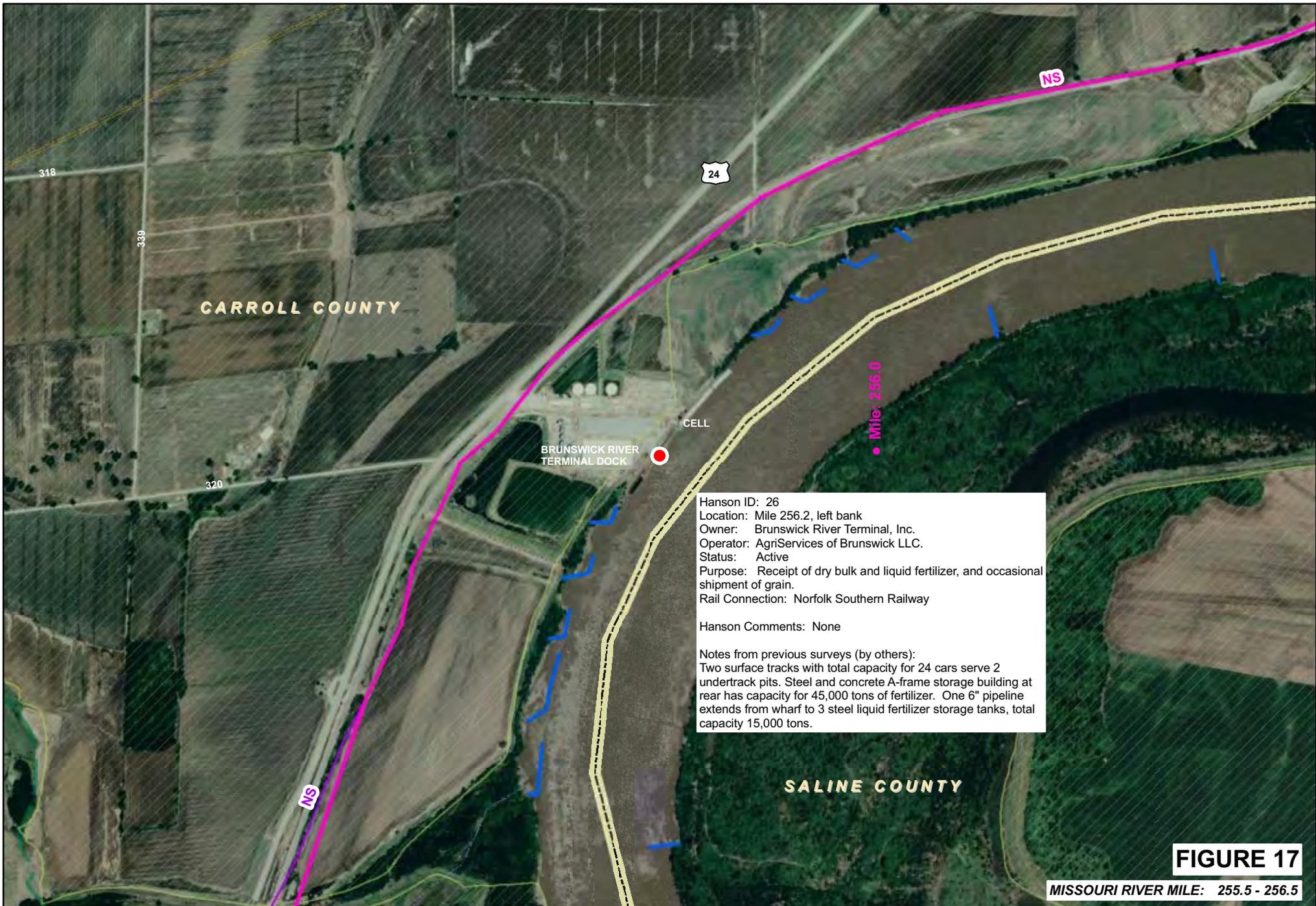
FIGURE 16

MISSOURI RIVER MILE: 225.5 - 227.0

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

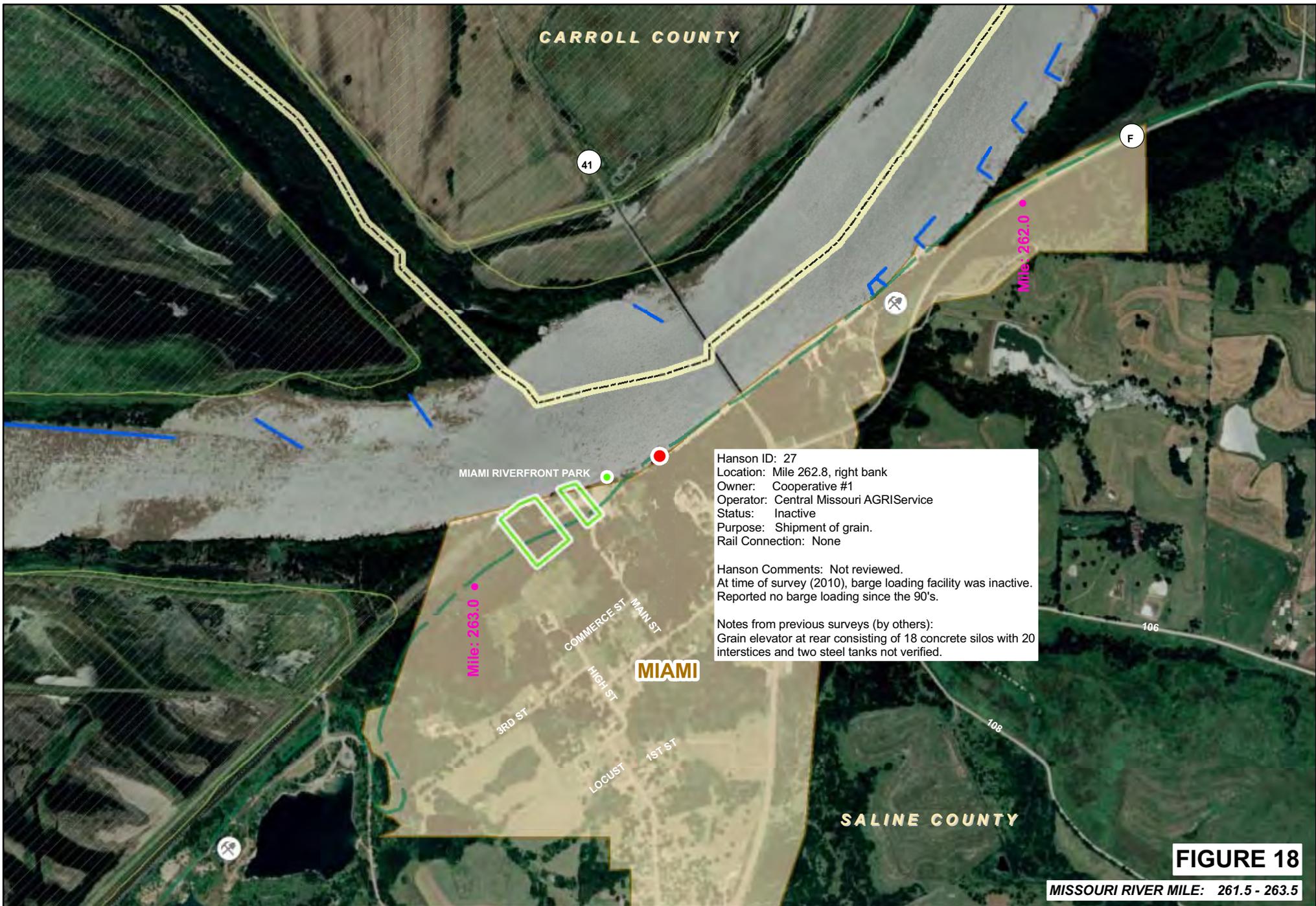


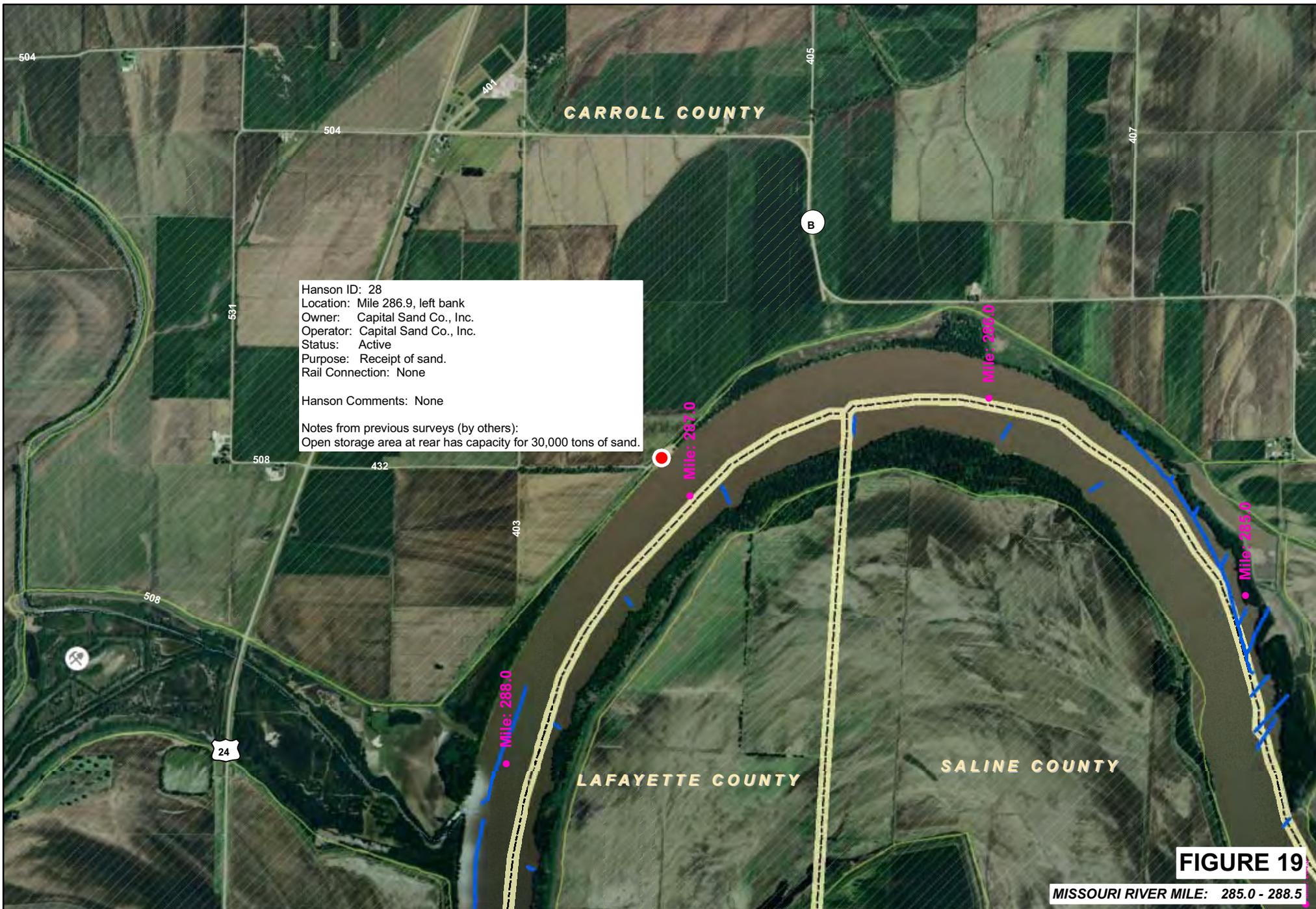
FIGURE 18

MISSOURI RIVER MILE: 261.5 - 263.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 24000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

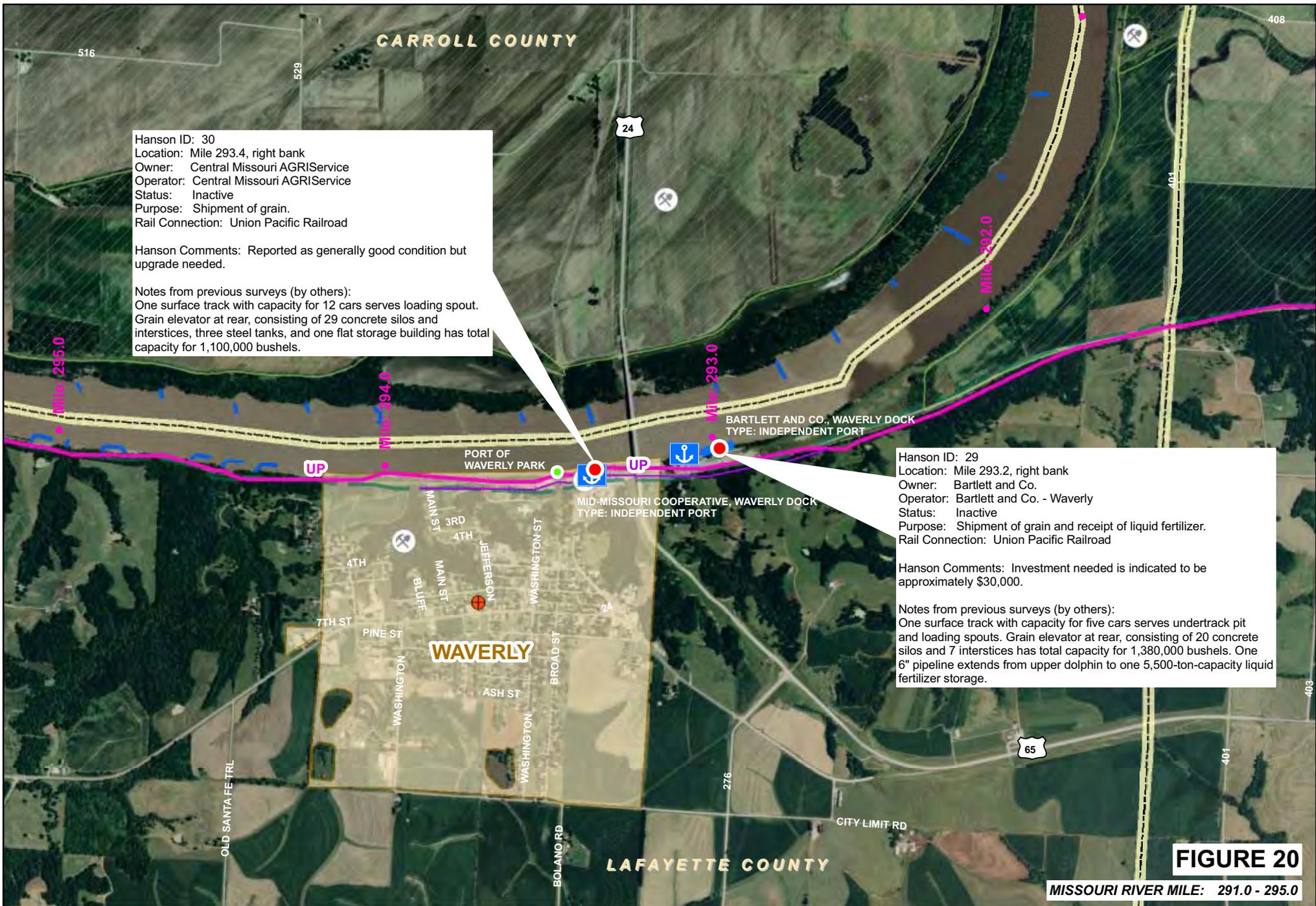


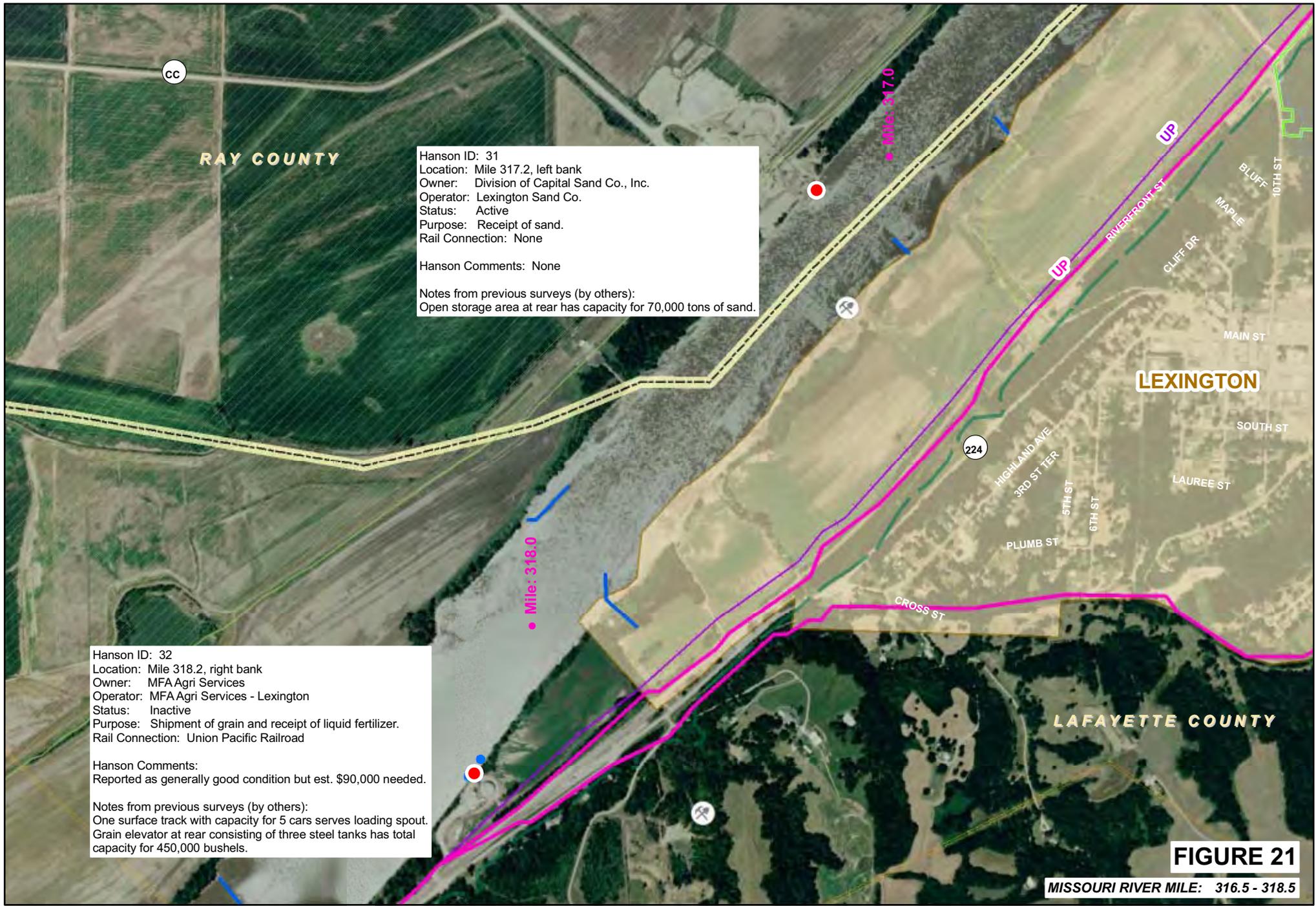
FIGURE 20

MISSOURI RIVER MILE: 291.0 - 295.0

SCALE = 1: 24000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 31
 Location: Mile 317.2, left bank
 Owner: Division of Capital Sand Co., Inc.
 Operator: Lexington Sand Co.
 Status: Active
 Purpose: Receipt of sand.
 Rail Connection: None

Hanson Comments: None

Notes from previous surveys (by others):
 Open storage area at rear has capacity for 70,000 tons of sand.

Hanson ID: 32
 Location: Mile 318.2, right bank
 Owner: MFA Agri Services
 Operator: MFA Agri Services - Lexington
 Status: Inactive
 Purpose: Shipment of grain and receipt of liquid fertilizer.
 Rail Connection: Union Pacific Railroad

Hanson Comments:
 Reported as generally good condition but est. \$90,000 needed.

Notes from previous surveys (by others):
 One surface track with capacity for 5 cars serves loading spout.
 Grain elevator at rear consisting of three steel tanks has total capacity for 450,000 bushels.

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

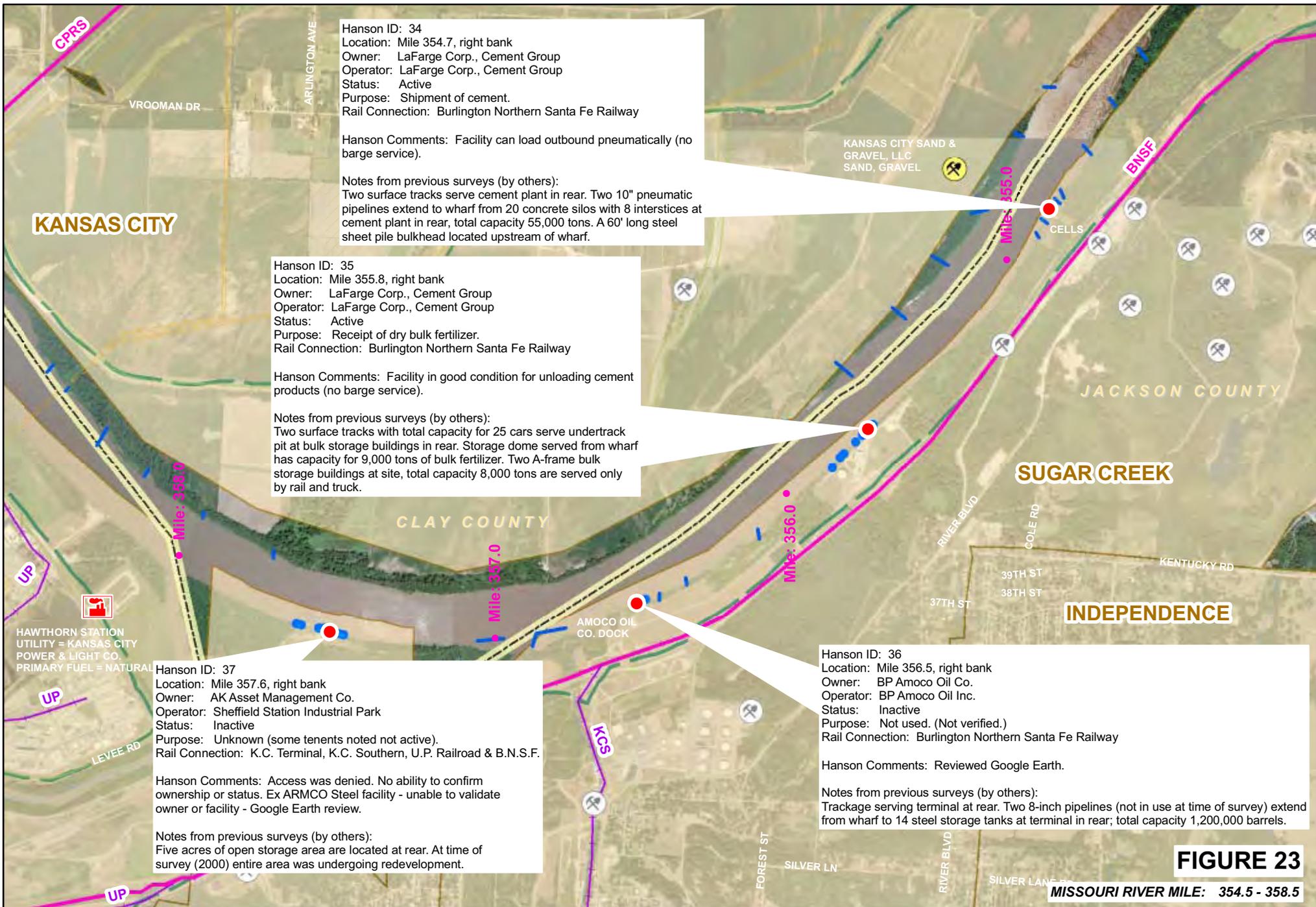


FIGURE 23

MISSOURI RIVER MILE: 354.5 - 358.5

SCALE = 1: 24000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

Hanson ID: 40
 Location: Mile 361.1, left bank
 Owner: Bartlett Grain Co.
 Operator: Bartlett Grain - Kansas City
 Status: Inactive
 Purpose: Shipment of grain.
 Rail Connection: Burlington Northern Santa Fe Railway

Hanson Comments: Google Earth indicates some structural work may be needed.

Notes from previous surveys (by others):
 Four surface tracks with total capacity for 65 cars serve undertrack pit and loading spouts. Grain elevator at rear consisting of 16 concrete silos with 23 interstices and 126 bins has total capacity for 3,824,000 bushels.

KANSAS CITY

Hanson ID: 39
 Location: Mile 360.6, left bank
 Owner: Conoco Phillips Inc.
 Operator: Conoco Phillips - Asphalt Terminal
 Status: Active
 Purpose: Receipt of asphalt and caustic soda.
 Rail Connection: Burlington Northern Santa Fe Railway

Hanson Comments: None

Notes from previous surveys (by others):
 One 6-car-capacity surface track serves terminal in rear. One 10" pipeline extends from wharf to 5 steel, asphalt storage tanks, total capacity 170,000 barrels. Two 6" pipelines extend to 2 caustic soda storage tanks, total cap. 1,276,000 gallons.

RANDOLPH

Hanson ID: 41
 Location: Mile 361.6, left bank
 Owner: Cargill Inc.
 Operator: Cargill Inc. - Chouteau
 Status: Inactive
 Purpose: Shipment of grain.
 Rail Connection: Norfolk Southern Railway & Burlington Northern Santa Fe Railway

Hanson Comments: Reported to be in good condition. Some manichal upgrades needed for marine structures.

Notes from previous surveys (by others):
 Four surface tracks with total capacity for 45 cars serve undertrack pit and loading spouts. Grain elevator at rear consisting of 6 concrete silos with 34 interstices and bins and one steel tank has total capacity for 900,000 bushels.

Hanson ID: 38
 Location: Mile 360.0, left bank
 Owner: Holliday Sand and Gravel Co.
 Operator: Holliday Sand and Gravel Co. - Randolph
 Status: Active
 Purpose: Lower Dock: Receipt of sand and gravel. Upper Dock: Mooring barges.
 Rail Connection: None

Hanson Comments: None

Notes from previous surveys (by others):
 Open storage area at rear has capacity for 100,000 tons of material.

FIGURE 24

MISSOURI RIVER MILE: 359.5 - 361.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

Hanson ID: 45
 Location: Mile 368.3, right bank
 Owner: Williams Energy Services Co. (reported)
 Operator: Conoco Phillips
 Status: Inactive
 Purpose: Appears to be Conoco Phillips facility.
 Rail Connection: Union Pacific Railroad

Hanson Comments: Google Earth indicates infrastructure is apparently intact. Access denied but marine structure identified. Condition unknown.

Notes from previous surveys (by others):
 Trackage at terminal in rear. One 8-inch pipeline on wharf was blanked at time of survey (2000).

Hanson ID: 44
 Location: Mile 367.6, right bank
 Owner: The Kansas City-Wyandotte County Joint Port Authority
 Operator: Bartlett and Co.
 Status: Inactive
 Purpose: Shipment of grain.
 Rail Connection: Union Pacific Railroad

Hanson Comments: None

Notes from previous surveys (by others):
 Trackage with capacity for 72 cars serves undertrack pits and loading spouts at grain elevator in rear. Overhead gallery to wharf through public levee ind. development. Grain elevator on opposite side of Fairfax Trafficway in rear, consisting of 492 concrete silos and interstices and 7 steel tanks, has total capacity for 10,000,000 bushels.

Hanson ID: 43
 Location: Mile 367.1, right bank
 Owner: City of Kansas City
 Operator: Port of Kansas City
 Status: Inactive
 Purpose: Receipt of salt and dry bulk fertilizer, and receipt and shipment of misc bulk materials.
 Rail Connection: Union Pacific Railroad

Hanson Comments: Several spot system upgrades could place bulk in service. Surface track serves facility in rear. No track tie in. Facility is idle.

Notes from previous surveys (by others):
 Seven compartmented storage buildings and one storage dome in rear have total capacity for 60,000 tons of bulk materials.

Hanson ID: 42
 Location: Mile 366.8, right bank
 Owner: American Compressed Steel, Inc.
 Operator: American Compressed Steel, Inc.
 Status: Inactive
 Purpose: Not used.
 Rail Connection: Union Pacific Railroad

Hanson Comments: Google Earth indicates an apparent dock structure but nothing else. One surface track serves facility in rear. No track tie in. No activity witnessed.

Notes from previous surveys (by others):
 Scrap metal processing facility located in rear.

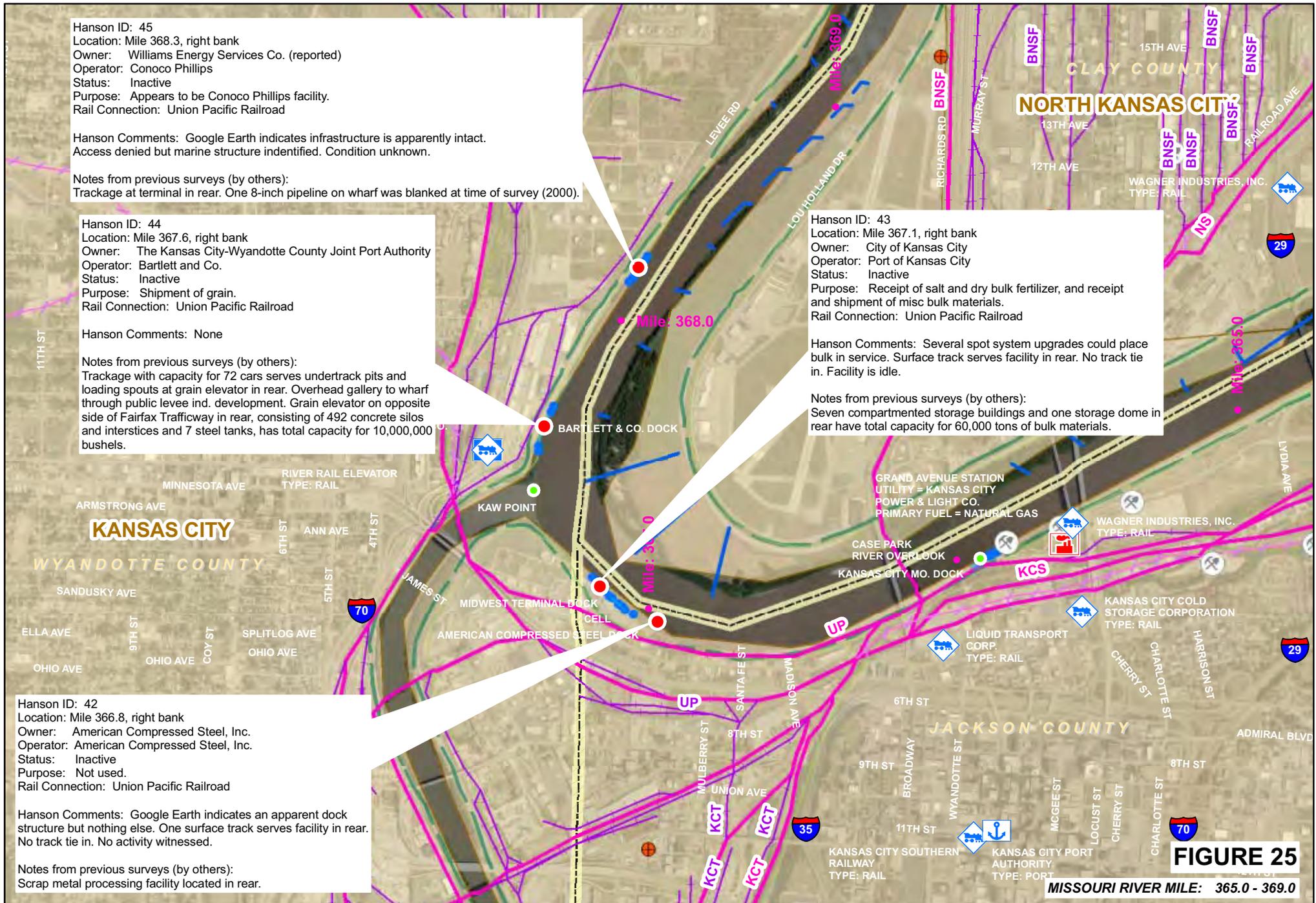


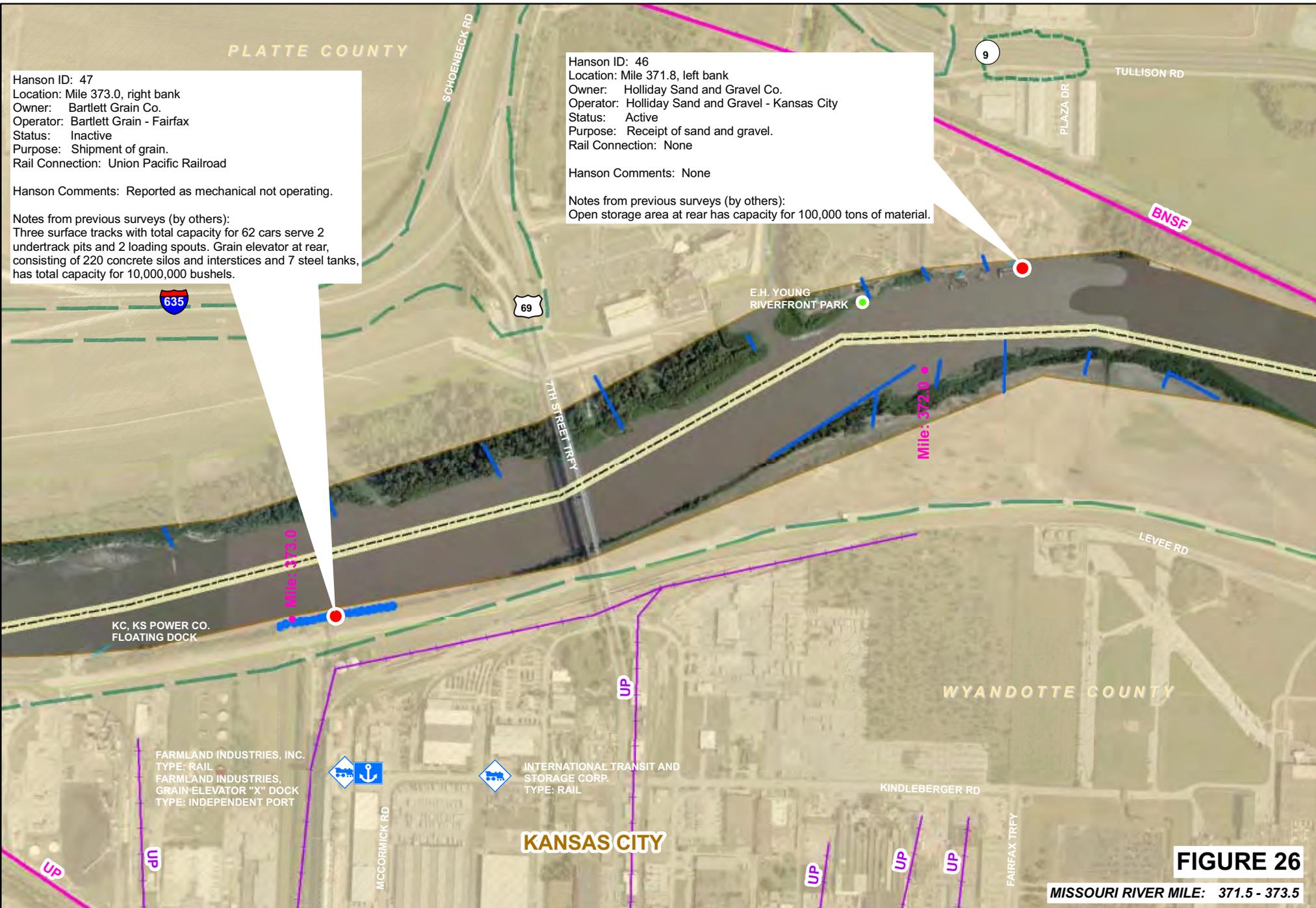
FIGURE 25

MISSOURI RIVER MILE: 365.0 - 369.0

SCALE = 1: 24000



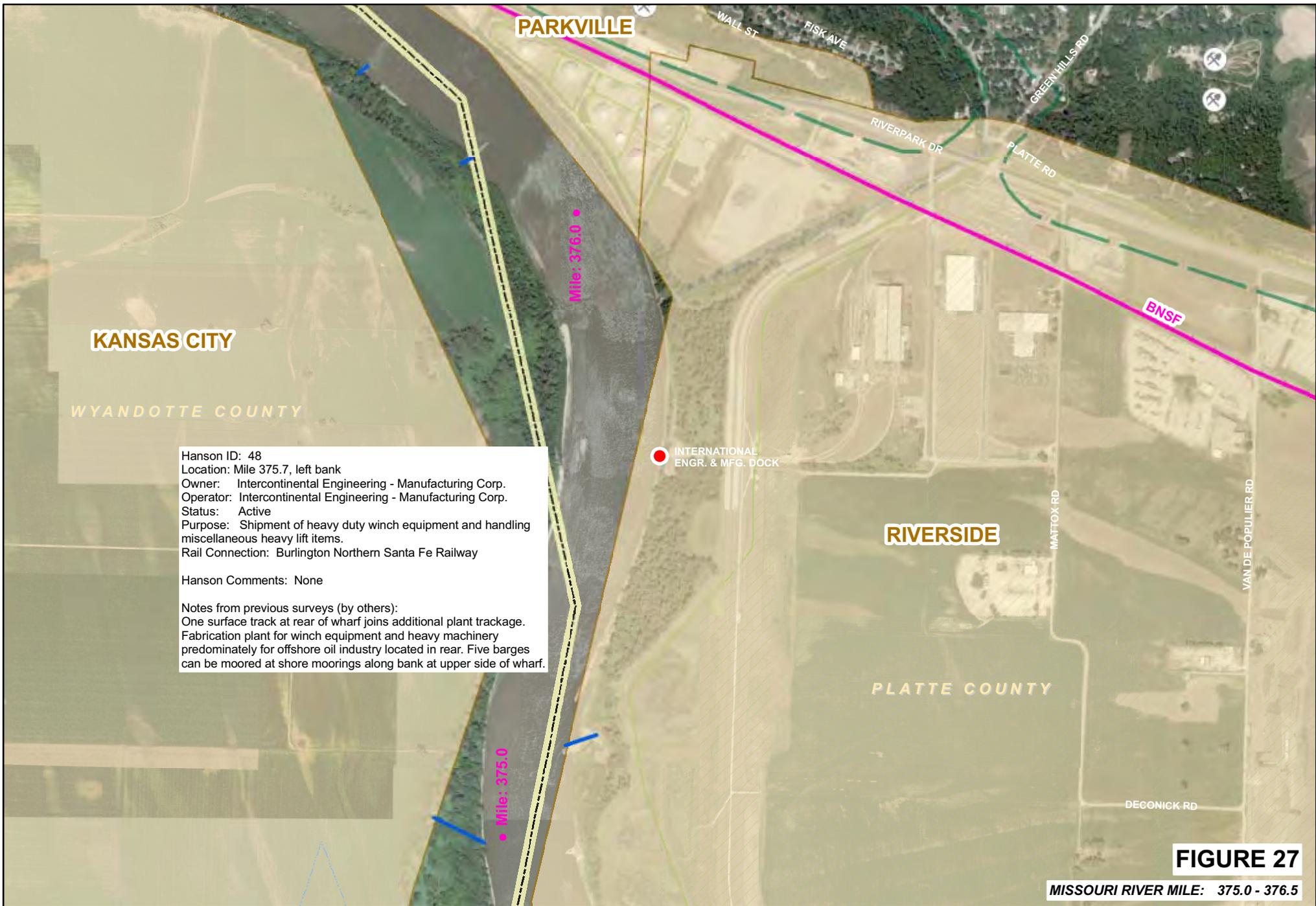
PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 48
 Location: Mile 375.7, left bank
 Owner: Intercontinental Engineering - Manufacturing Corp.
 Operator: Intercontinental Engineering - Manufacturing Corp.
 Status: Active
 Purpose: Shipment of heavy duty winch equipment and handling miscellaneous heavy lift items.
 Rail Connection: Burlington Northern Santa Fe Railway

Hanson Comments: None

Notes from previous surveys (by others):
 One surface track at rear of wharf joins additional plant trackage. Fabrication plant for winch equipment and heavy machinery predominately for offshore oil industry located in rear. Five barges can be moored at shore moorings along bank at upper side of wharf.

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

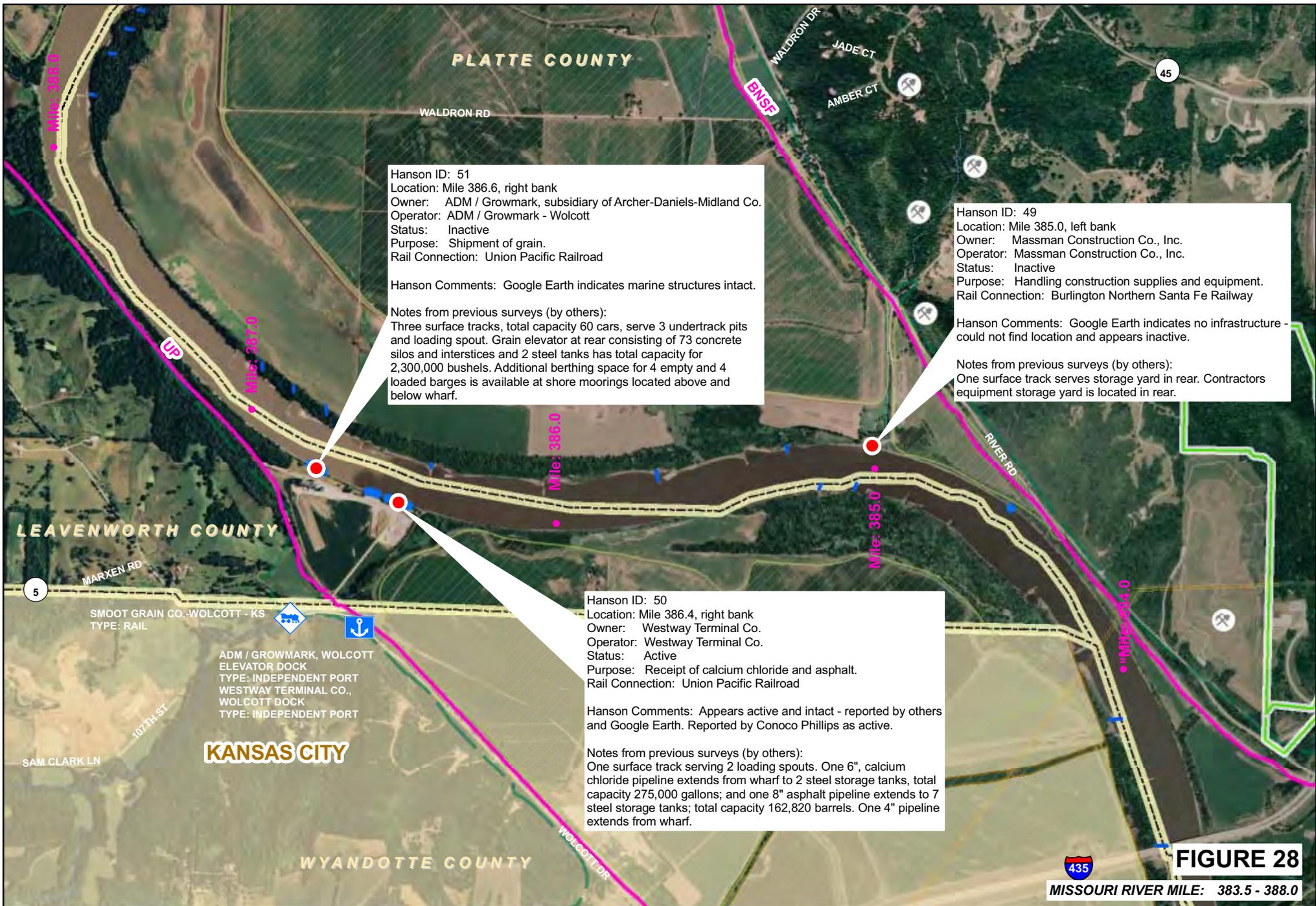


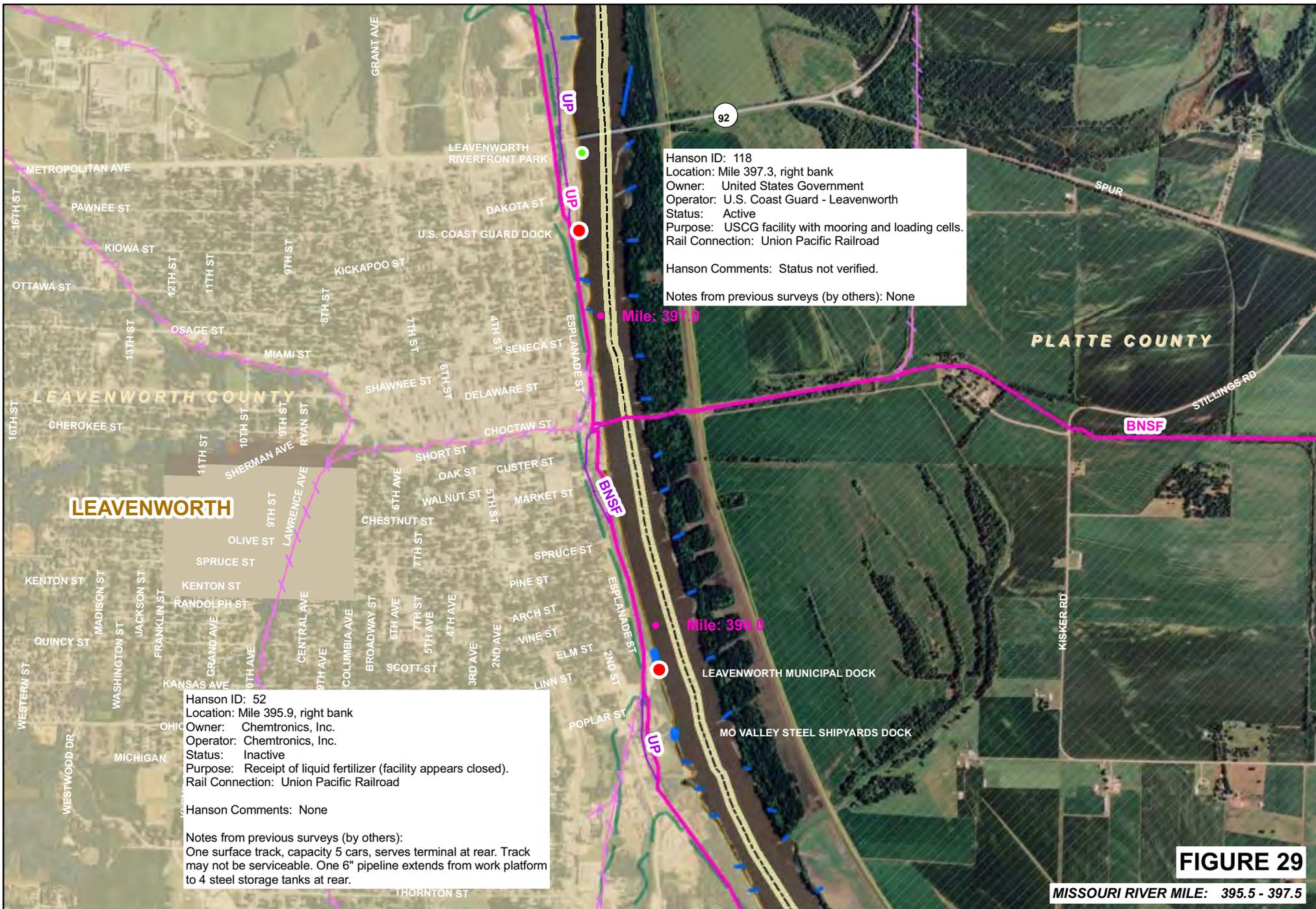
FIGURE 28

MISSOURI RIVER MILE: 383.5 - 388.0

SCALE = 1: 24000



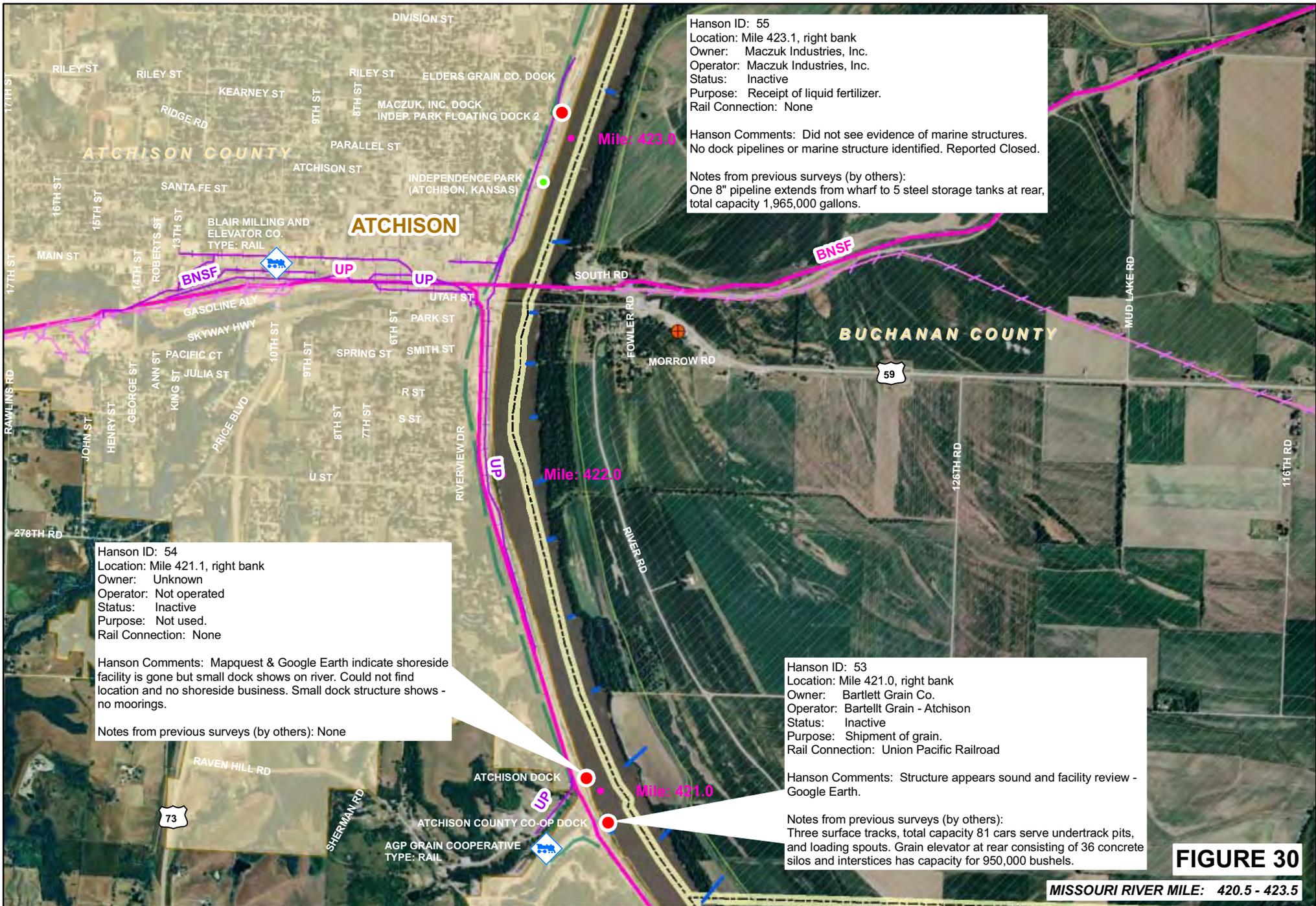
PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 24000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 55
 Location: Mile 423.1, right bank
 Owner: Maczuk Industries, Inc.
 Operator: Maczuk Industries, Inc.
 Status: Inactive
 Purpose: Receipt of liquid fertilizer.
 Rail Connection: None

Hanson Comments: Did not see evidence of marine structures. No dock pipelines or marine structure identified. Reported Closed.

Notes from previous surveys (by others): One 8" pipeline extends from wharf to 5 steel storage tanks at rear, total capacity 1,965,000 gallons.

Hanson ID: 54
 Location: Mile 421.1, right bank
 Owner: Unknown
 Operator: Not operated
 Status: Inactive
 Purpose: Not used.
 Rail Connection: None

Hanson Comments: Mapquest & Google Earth indicate shoreside facility is gone but small dock shows on river. Could not find location and no shoreside business. Small dock structure shows - no moorings.

Notes from previous surveys (by others): None

Hanson ID: 53
 Location: Mile 421.0, right bank
 Owner: Bartlett Grain Co.
 Operator: Bartlett Grain - Atchison
 Status: Inactive
 Purpose: Shipment of grain.
 Rail Connection: Union Pacific Railroad

Hanson Comments: Structure appears sound and facility review - Google Earth.

Notes from previous surveys (by others): Three surface tracks, total capacity 81 cars serve undertrack pits, and loading spouts. Grain elevator at rear consisting of 36 concrete silos and interstices has capacity for 950,000 bushels.

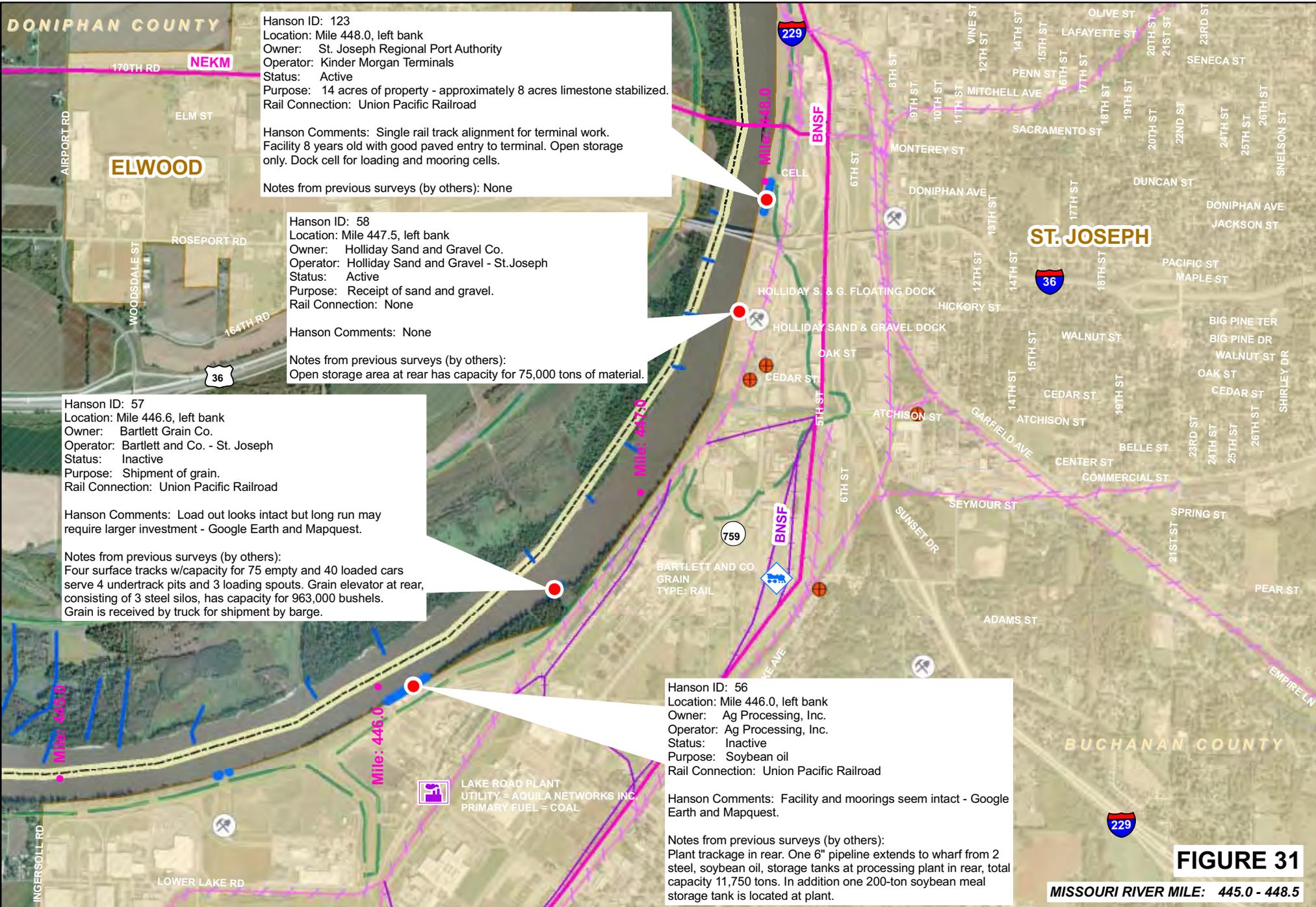
FIGURE 30

MISSOURI RIVER MILE: 420.5 - 423.5

SCALE = 1: 24000



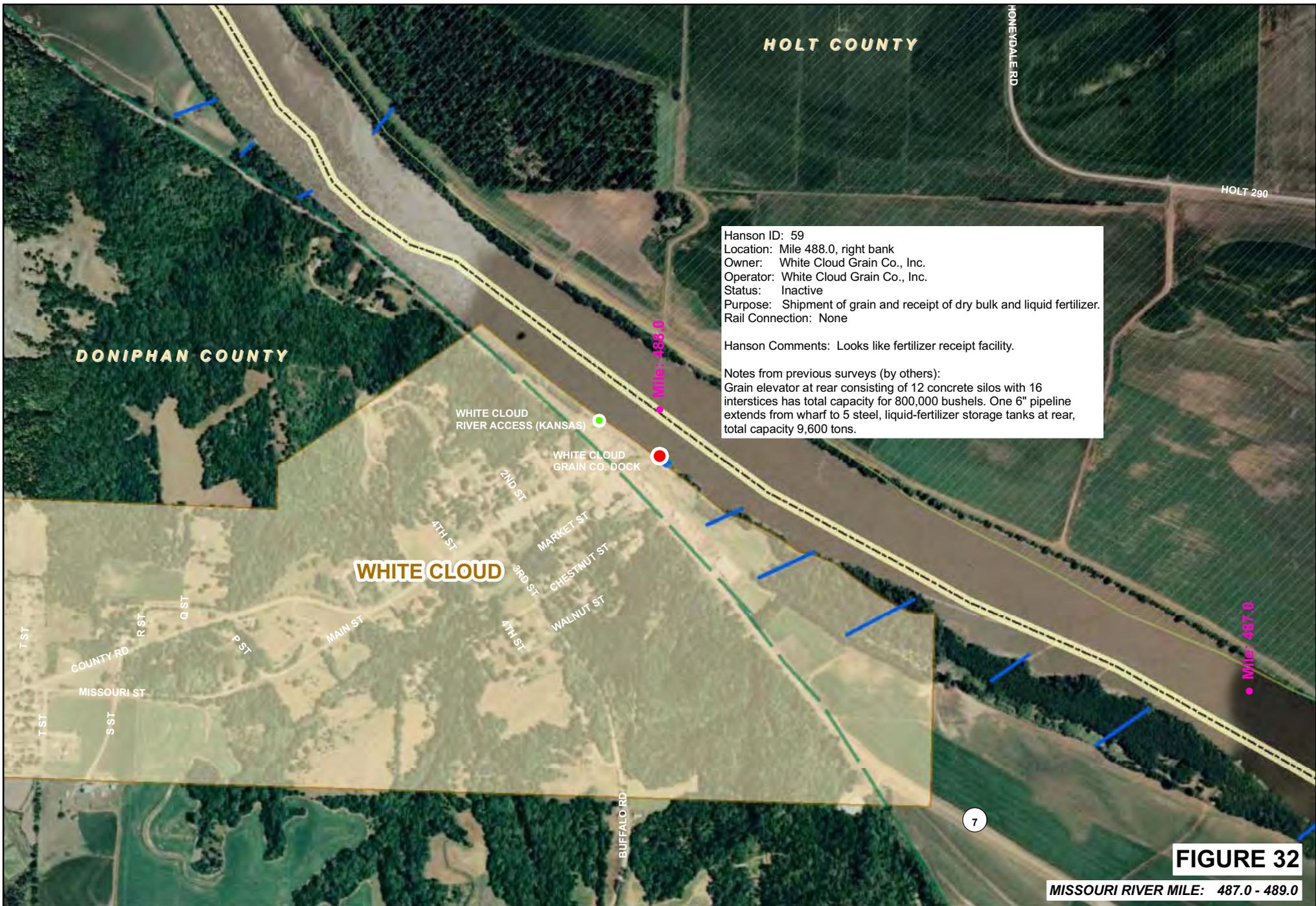
PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 24000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 59
 Location: Mile 488.0, right bank
 Owner: White Cloud Grain Co., Inc.
 Operator: White Cloud Grain Co., Inc.
 Status: Inactive
 Purpose: Shipment of grain and receipt of dry bulk and liquid fertilizer.
 Rail Connection: None

Hanson Comments: Looks like fertilizer receipt facility.

Notes from previous surveys (by others):
 Grain elevator at rear consisting of 12 concrete silos with 16 interstices has total capacity for 800,000 bushels. One 6" pipeline extends from wharf to 5 steel, liquid-fertilizer storage tanks at rear, total capacity 9,600 tons.

FIGURE 32

MISSOURI RIVER MILE: 487.0 - 489.0

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

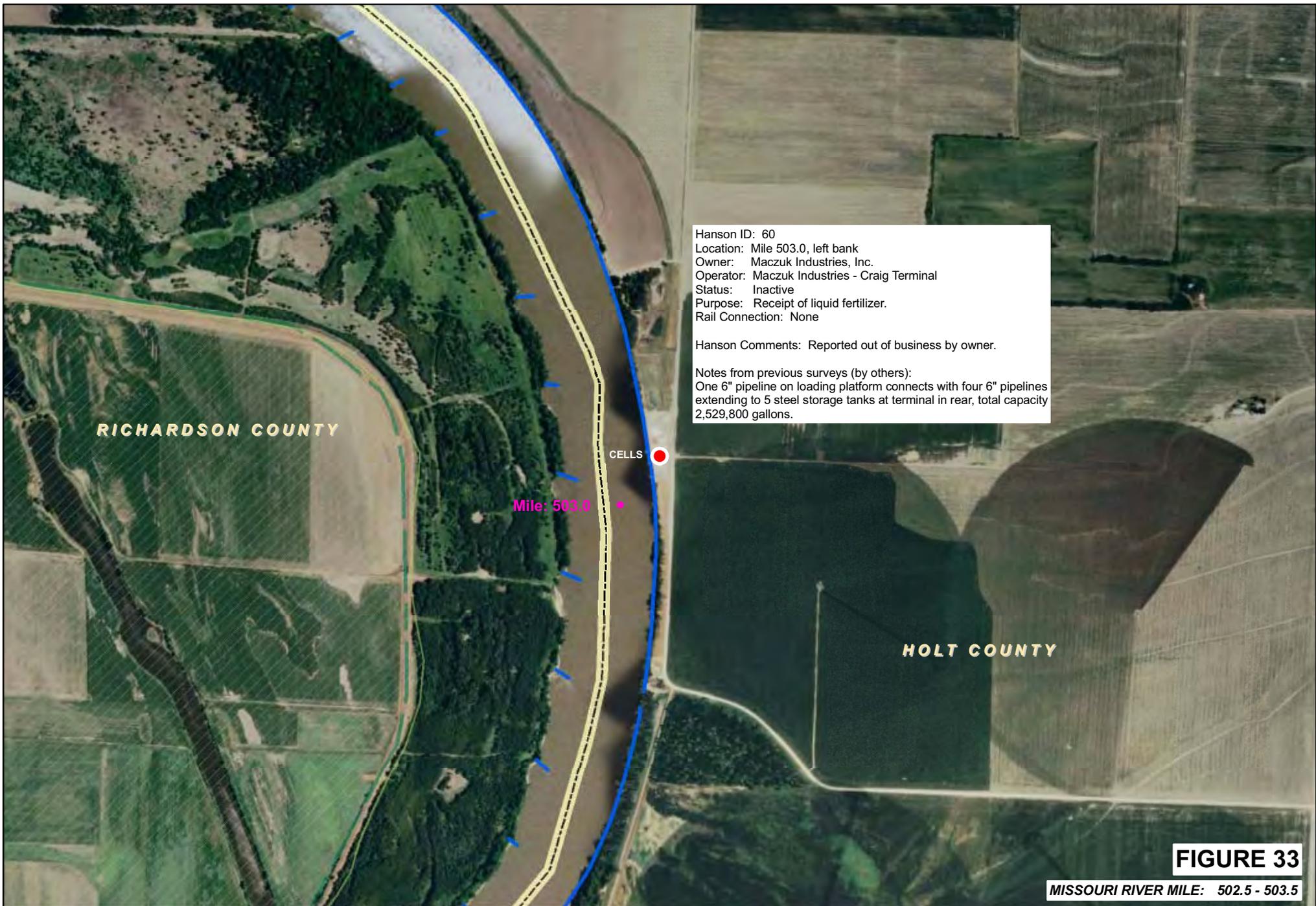


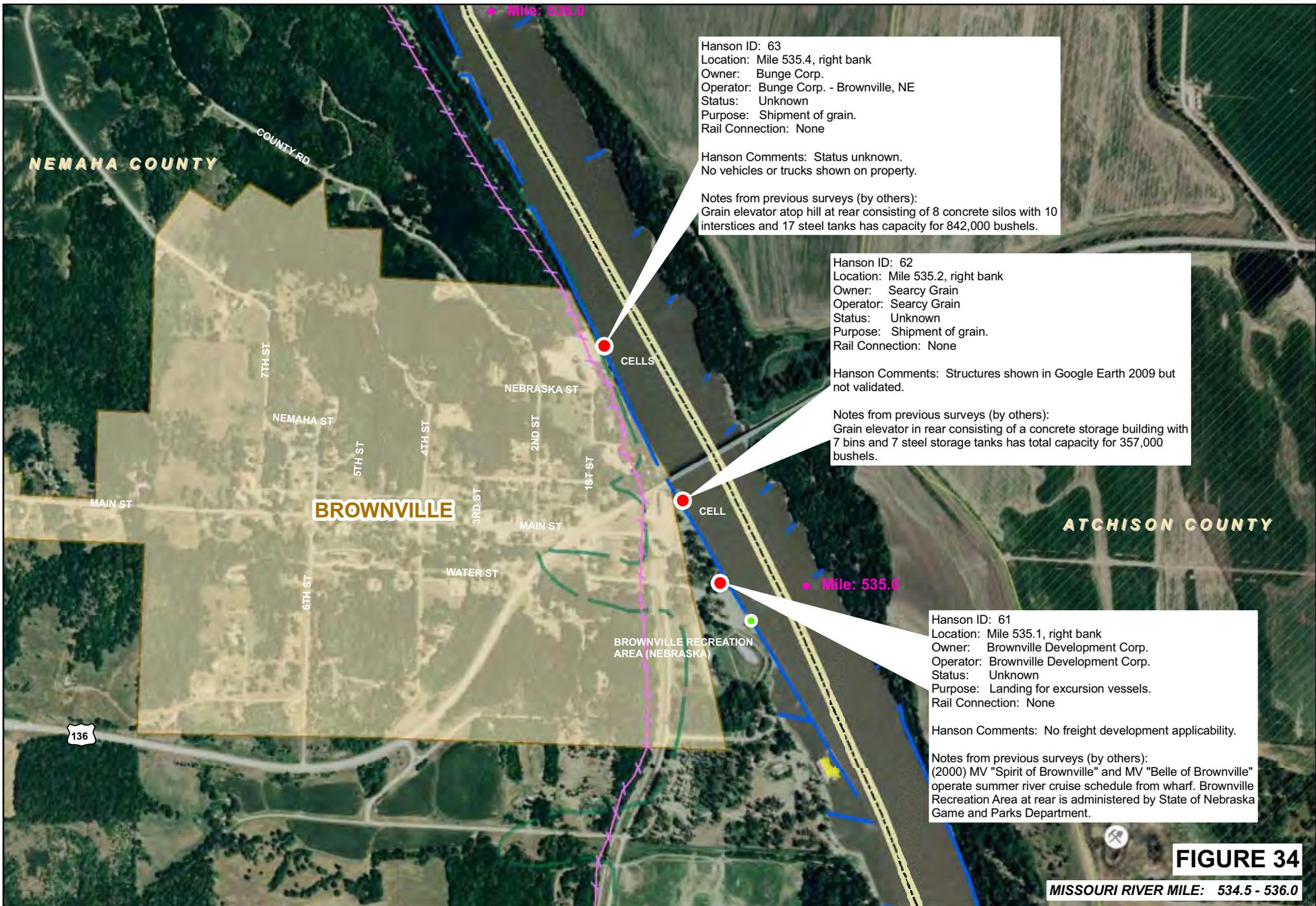
FIGURE 33

MISSOURI RIVER MILE: 502.5 - 503.5

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



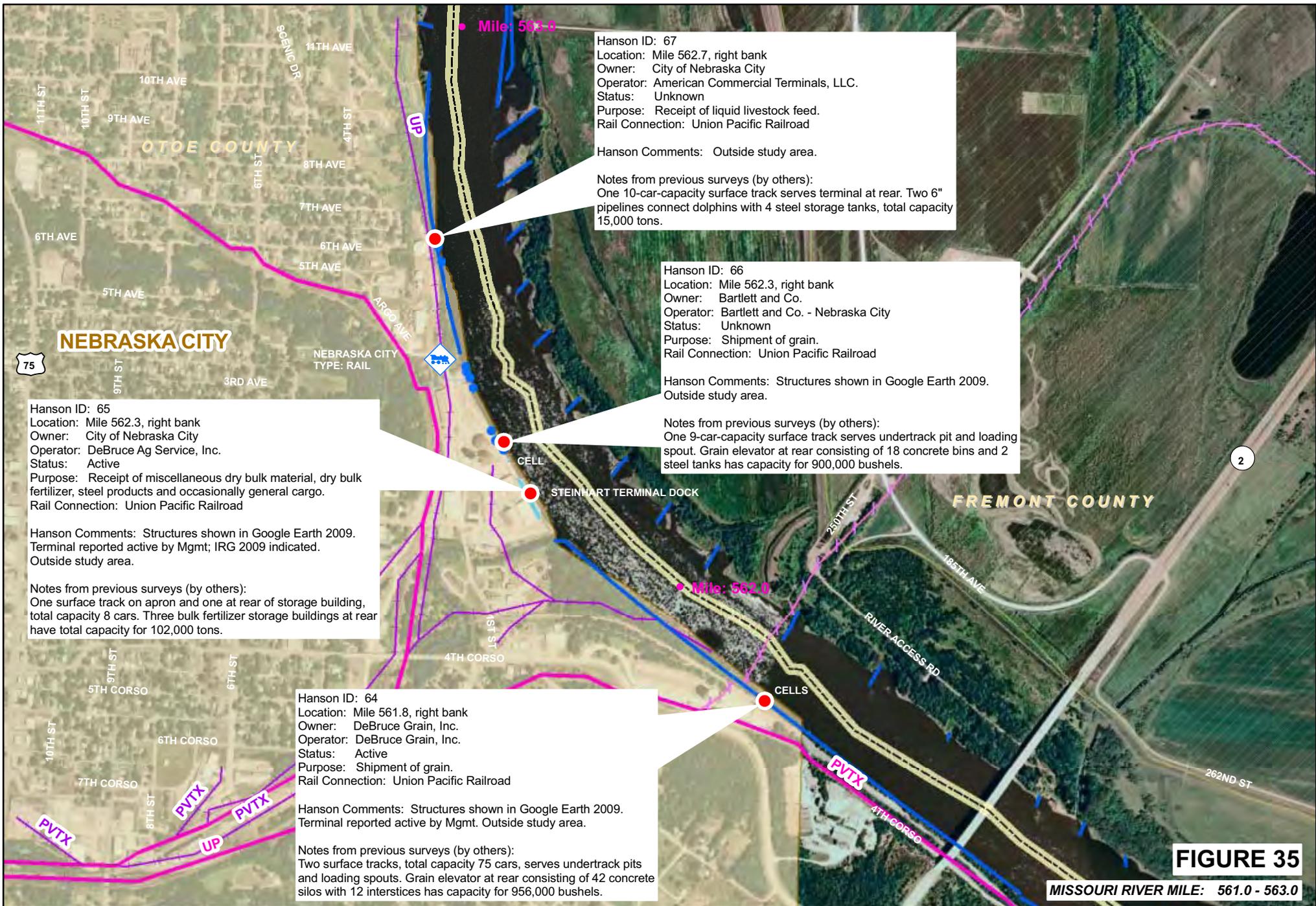
SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

FIGURE 34

MISSOURI RIVER MILE: 534.5 - 536.0



SCALE = 1: 12000





FIGURE 36

MISSOURI RIVER MILE: 583.5 - 584.5

SCALE = 1: 12000



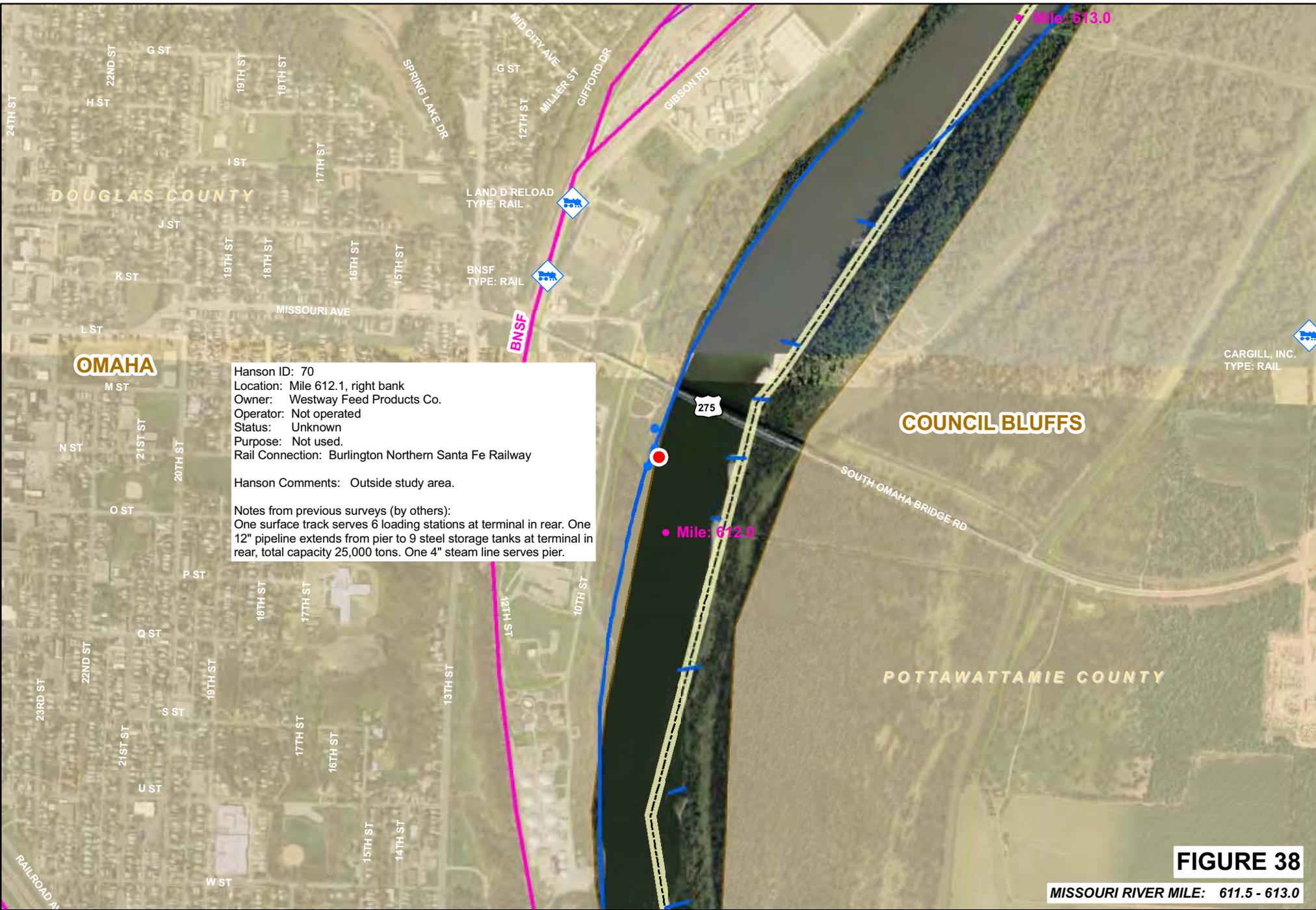
PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)



Hanson ID: 70
 Location: Mile 612.1, right bank
 Owner: Westway Feed Products Co.
 Operator: Not operated
 Status: Unknown
 Purpose: Not used.
 Rail Connection: Burlington Northern Santa Fe Railway

Hanson Comments: Outside study area.

Notes from previous surveys (by others):
 One surface track serves 6 loading stations at terminal in rear. One 12" pipeline extends from pier to 9 steel storage tanks at terminal in rear, total capacity 25,000 tons. One 4" steam line serves pier.

SCALE = 1: 12000



PROJECT NO.: 10H0011
 INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)

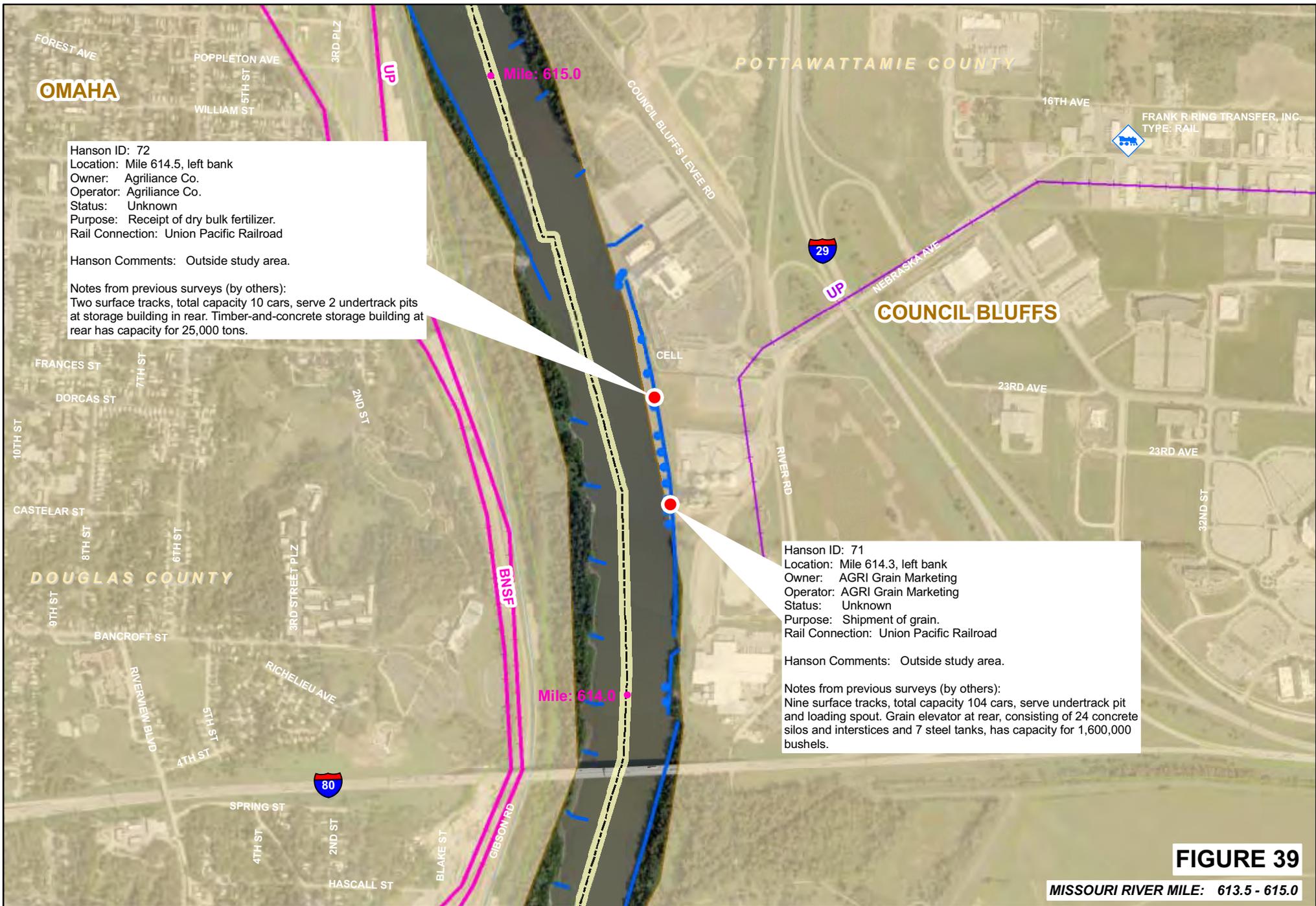


FIGURE 39

MISSOURI RIVER MILE: 613.5 - 615.0

SCALE = 1: 12000



PROJECT NO.: 10H0011
INVENTORY OF MISSOURI RIVER FACILITIES
 (VERSION DATE: MAY 13, 2011)