



**Agricultural Products
Unit Train Facility Design Guidelines**

Last updated September 2017

Table of Contents

- I.) Key Contacts3
- II.) BNSF Unit Train Development Process.....4
- III.) Unit Train Standards
 - a. Shuttle Trains – Including corn, cracked corn, wheat, soybeans, peas, barley, flaxseed, lentils, other oilseeds and milo5
 - b. Ethanol7
 - c. DDG, Oilseed Meals, and Cottonseed.....9
 - d. Fertilizer11
- IV.) Sample Designs.....13

BNSF Unit Train Economic Development Contacts

Unit Train Location and Concept Development

James Landavazo
Mgr. Ag Planning and Development
North & South Region
817-867-6124
James.Landavazo@bnsf.com

Unit Train New Business Review and Agreements

Mike Ray
Mgr. Economic Development
Montana, North Dakota, South Dakota, Minnesota
817-867-6522
Michael.Ray@bnsf.com

Mike Martucci
Mgr. Economic Development
All other locations
817-867-0804
Mike.Martucci@bnsf.com

BNSF Unit Train Development Process

- 1.) **Identify the site:** If this is a new facility, BNSF can provide assistance with identifying a suitable location.
- 2.) **Develop a facility Design:** BNSF will work with you to develop potential track designs that meet the unit train guidelines.
- 3.) **Get approved:** The concept and business plan will be submitted to BNSF New Business Review Process (NBR). The facility will get a preliminary approval from Operations, Service Design, and Engineering.
- 4.) **Build:** BNSF will hold an onsite meeting to discuss necessary agreements, rail operations, design, and other site related details.
 - a. **Design:** Customer is responsible for hiring a qualified design/engineering firm to produce fully engineered plans. BNSF Engineering will review industry site plans for compliance with industry track guidelines
 - b. **Agreements:** If located on BNSF, Economic Development will work with industry to establish land and track agreements prior to construction in the right of way.
- 5.) **Ship:** Once facility is completed and all agreements are in place, BNSF will perform a final inspection of the track.

If there are any discrepancies between the BNSF Shuttle Train Facility Guidelines and Tariff 4022 the Tariff should be considered the governing authority.

BNSF Shuttle Train Facility Guidelines

Commodities: Corn, cracked corn, wheat, soybeans, peas, barley, flaxseed, lentils, other oilseeds and milo

These guidelines are for informational purposes only. Specific requirements for a shuttle facility will be determined on a case by case basis to ensure that any such facility is designed, constructed and operated in accordance with BNSF operating practices.

Operational Requirements:

- Track length must be sufficient to allow the BNSF to drop-off and pick-up the entire train in one string.
- Loading/Unloading of the entire unit train must not exceed 15 hours

Design Guidelines:

Track construction and technical design elements are located in 'Design Guidelines for Industrial Track Projects'. This document can be found on our website at <http://www.bnsf.com/ship-with-bnsf/ways-of-shipping/pdf/indytrkstds.pdf#page=10>

- 1.) Minimum of 8,000 feet of clear track; includes room for a shuttle of 110 hoppers (62' in length) or 120 hoppers (56' in length) and 4 BNSF locomotives (75' in length). Actual footage requirement may increase if more locomotives are needed based on site location.
- 2.) Locomotive storage – must have a dedicated track well lite for private switch engine and BNSF locomotive storage for non-loop track designs.
- 3.) Setout Track – Facility must have a dedicated track for bad orders or rejected equipment (minimum 300' of clear track) with appropriate lighting and derail protection to provide blue flag protection for mechanical inspectors.
- 4.) Unit and Manifest Volume – must have separate Unit Train and Single Car tracks that can be accessed by BNSF independently from one another.
- 5.) Mainline Turnouts – must have access to BNSF mainline in both directions (2 switches; switch type / size may vary based on geography).
- 6.) Universal Entry / Exit – must have in order to enter and exit the loop track onto the main line without having to reposition power.

- 7.) Arrival/Departure – Tracks need to be spaced at least 25ft apart to allow for BNSF Crew Van to conduct a train inspection from either side of the track.
- 8.) Crew Van Turnaround - Crew drop off location needs to be near a mainline switch with a circle driveway containing a turning radius of 45ft. Crew turn around point needs to be separate from a fueling pad.

Additional Guidelines:

- 1.) All public or private crossings that the unit train will block during loading/unloading must be permanently closed. Temporary closures will only be authorized on sections of track that are not used during loading or unloading. BNSF will specify a minimum time based on various factors. BNSF will require a copy of the closure agreement from the governing authority of the affected crossing(s) – state, county, township, city, etc.
- 2.) For work within 25 feet of the BNSF Mainline Track (clearance from the center-line of mainline), the industry will be responsible for cost of BNSF Flagging services. The customer/contractor should discuss Flagging Service requirements with the BNSF Roadmaster, estimating how many hours/days construction will be within the 25-foot clearance limits.
- 3.) Use of BNSF locomotives for loading/unloading is subject to BNSF approval and a signed use agreement.
- 4.) Unit Train or Shuttle projects on Short Lines are subject to these requirements and a separate case-by-case approval process.

Loading and Unloading Incentives

Additional incentives are available for processing the train in. Details can be found in the 4022 tariff at www.bnsf.com :

- A.) Origin Efficiency Payments: Item 13500
- B.) Destination Efficiency Payments: Item 13501
- C.) Reload incentive: Item 13502

BNSF Unit Train Facility Guidelines

Commodities: Ethanol

These guidelines are for informational purposes only. Specific requirements for a shuttle facility will be determined on a case by case basis to ensure that any such facility is designed, constructed and operated in accordance with BNSF operating practices.

Operational Requirements:

Track length must be sufficient to allow the BNSF to drop-off and pick-up the entire train in one string.

Design Guidelines:

Track construction and technical design elements are located in 'Design Guidelines for Industrial Track Projects'. This document can be found on our website at <http://www.bnsf.com/ship-with-bnsf/ways-of-shipping/pdf/indytrkstds.pdf#page=10>

- 1.) Minimum of 6,900 feet of clear track; includes room for 96 ethanol tanks, 2 buffer cars (62' in length) and 4 BNSF locomotives (75' in length). Actual footage requirement may increase if more locomotives are needed based on site location, if track is also utilized for corn shuttles or DDG unit trains, or if empties are to be stored on site.
- 2.) Locomotive storage – must have a dedicated track well lite for private switch engine and BNSF locomotive storage for non-loop track designs.
- 3.) Setout Track – Facility must have a dedicated track for bad orders or rejected equipment (minimum 300' of clear track) with appropriate lighting and derail protection to provide blue flag protection for mechanical inspectors.
- 4.) Unit and Manifest Volume – must have separate Unit Train and Single Car tracks that can be accessed by BNSF independently from one another.
- 5.) Mainline Turnouts – must have access to BNSF mainline in both directions (2 switches; switch type / size may vary based on geography).
- 6.) Universal Entry / Exit – must have in order to enter and exit the loop track onto the main line without having to reposition power.
- 7.) Arrival/Departure – Tracks need to be spaced at least 25ft apart to allow for BNSF Crew Van to conduct a train inspection from either side of the track.

- 8.) Crew Van Turnaround - Crew drop off location needs to be near a mainline switch with a circle driveway containing a turning radius of 45ft. Crew turn around point needs to be separate from a fueling pad.

Additional Guidelines:

- 1.) Ethanol storage tracks must be 50' from main track and loading/unloading must be 100' from main track.
- 2.) All public or private crossings that the unit train will block during loading/unloading must be permanently closed. Temporary closures will only be authorized on sections of track that are not used during loading or unloading. BNSF will specify a minimum time based on various factors. BNSF will require a copy of the closure agreement from the governing authority of the affected crossing(s) – state, county, township, city, etc.
- 3.) For work within 25 feet of the BNSF Mainline Track (clearance from the center-line of mainline), the industry will be responsible for cost of BNSF Flagging services. The customer/contractor should discuss Flagging Service requirements with the BNSF Roadmaster, estimating how many hours/days construction will be within the 25-foot clearance limits.
- 4.) Unit Train or Shuttle projects on Short Lines are subject to these requirements and a separate case-by-case approval process.

BNSF Unit Train Facility Guidelines

Commodities: DDG, Oilseed Meals, and Cottonseed

These guidelines are for informational purposes only. Specific requirements for a shuttle facility will be determined on a case by case basis to ensure that any such facility is designed, constructed and operated in accordance with BNSF operating practices.

Operational Requirements:

Track length must be sufficient to allow the BNSF to drop-off and pick-up the entire train in one string.

Design Guidelines:

Track construction and technical design elements are located in 'Design Guidelines for Industrial Track Projects'. This document can be found on our website at <http://www.bnsf.com/ship-with-bnsf/ways-of-shipping/pdf/indytrkstds.pdf#page=10>

- 1.) Minimum of 8,000 feet of clear track; includes room for 100 cars (70' in length) and 4 BNSF locomotives (75' in length). Actual footage requirement may increase if more locomotives are needed based on site location.
- 2.) Locomotive storage – must have a dedicated track well lite for private switch engine and BNSF locomotive storage for non-loop track designs.
- 3.) Setout Track – Facility must have a dedicated track for bad orders or rejected equipment (minimum 300' of clear track) with appropriate lighting and derail protection to provide blue flag protection for mechanical inspectors.
- 4.) Unit and Manifest Volume – must have separate Unit Train and Single Car tracks that can be accessed by BNSF independently from one another.
- 5.) Mainline Turnouts – must have access to BNSF mainline in both directions (2 switches; switch type / size may vary based on geography).
- 6.) Universal Entry / Exit – must have in order to enter and exit the loop track onto the main line without having to reposition power.
- 7.) Arrival/Departure – Tracks need to be spaced at least 25ft apart to allow for BNSF Crew Van to conduct a train inspection from either side of the track.

- 8.) Crew Van Turnaround - Crew drop off location needs to be near a mainline switch with a circle driveway containing a turning radius of 45ft. Crew turn around point needs to be separate from a fueling pad.

Additional Guidelines:

- 1.) All public or private crossings that the unit train will block during loading/unloading must be permanently closed. Temporary closures will only be authorized on sections of track that are not used during loading or unloading. BNSF will specify a minimum time based on various factors. BNSF will require a copy of the closure agreement from the governing authority of the affected crossing(s) – state, county, township, city, etc.
- 2.) For work within 25 feet of the BNSF Mainline Track (clearance from the center-line of mainline), the industry will be responsible for cost of BNSF Flagging services. The customer/contractor should discuss Flagging Service requirements with the BNSF Roadmaster, estimating how many hours/days construction will be within the 25-foot clearance limits.
- 3.) Use of BNSF locomotives for loading/unloading is subject to BNSF approval and a signed use agreement.
- 4.) Unit Train or Shuttle projects on Short Lines are subject to these requirements and a separate case-by-case approval process.

BNSF Unit Train Facility Guidelines

Commodities: Fertilizer

These guidelines are for informational purposes only. Specific requirements for a shuttle facility will be determined on a case by case basis to ensure that any such facility is designed, constructed and operated in accordance with BNSF operating practices.

Operational Requirements:

- Track length must be sufficient to allow the BNSF to drop-off and pick-up the entire train in one string.
- Loading/Unloading of the entire unit train must not exceed 24 hours.

Design Guidelines:

Track construction and technical design elements are located in 'Design Guidelines for Industrial Track Projects'. This document can be found on our website at <http://www.bnsf.com/ship-with-bnsf/ways-of-shipping/pdf/indytrkstds.pdf#page=10>

- 1.) Minimum of 6,900 feet of clear track; includes room for up to 100 hoppers or tanks (62' in length) and 4 BNSF locomotives. Actual footage requirement may increase if more locomotives are needed based on site location.
- 2.) Locomotive storage – must have a dedicated track well lite for private switch engine and BNSF locomotive storage for non-loop track designs.
- 3.) Setout Track – Facility must have a dedicated track for bad orders or rejected equipment (minimum 300' of clear track) with appropriate lighting and derail protection to provide blue flag protection for mechanical inspectors.
- 4.) Unit and Manifest Volume – must have separate Unit Train and Single Car tracks that can be accessed by BNSF independently from one another.
- 5.) Mainline Turnouts – must have access to BNSF mainline in both directions (2 switches; switch type / size may vary based on geography).
- 6.) Universal Entry / Exit – must have in order to enter and exit the loop track onto the main line without having to reposition power.
- 7.) Arrival/Departure – Tracks need to be spaced at least 25ft apart to allow for BNSF Crew Van to conduct a train inspection from either side of the track.

- 8.) Crew Van Turnaround - Crew drop off location needs to be near a mainline switch with a circle driveway containing a turning radius of 45ft. Crew turn around point needs to be separate from a fueling pad.

Additional Guidelines:

- 1.) All public or private crossings that the unit train will block during loading/unloading must be permanently closed. Temporary closures will only be authorized on sections of track that are not used during loading or unloading. BNSF will specify a minimum time based on various factors. BNSF will require a copy of the closure agreement from the governing authority of the affected crossing(s) – state, county, township, city, etc.
- 2.) For work within 25 feet of the BNSF Mainline Track (clearance from the center-line of mainline), the industry will be responsible for cost of BNSF Flagging services. The customer/contractor should discuss Flagging Service requirements with the BNSF Roadmaster, estimating how many hours/days construction will be within the 25-foot clearance limits.
- 3.) Use of BNSF locomotives for loading/unloading is subject to BNSF approval and a signed use agreement.
- 4.) Unit Train or Shuttle projects on Short Lines are subject to these requirements and a separate case-by-case approval process.

BNSF Unit Train Concept Examples

These designs are examples of some of the more common styles of track designs for unit trains.

